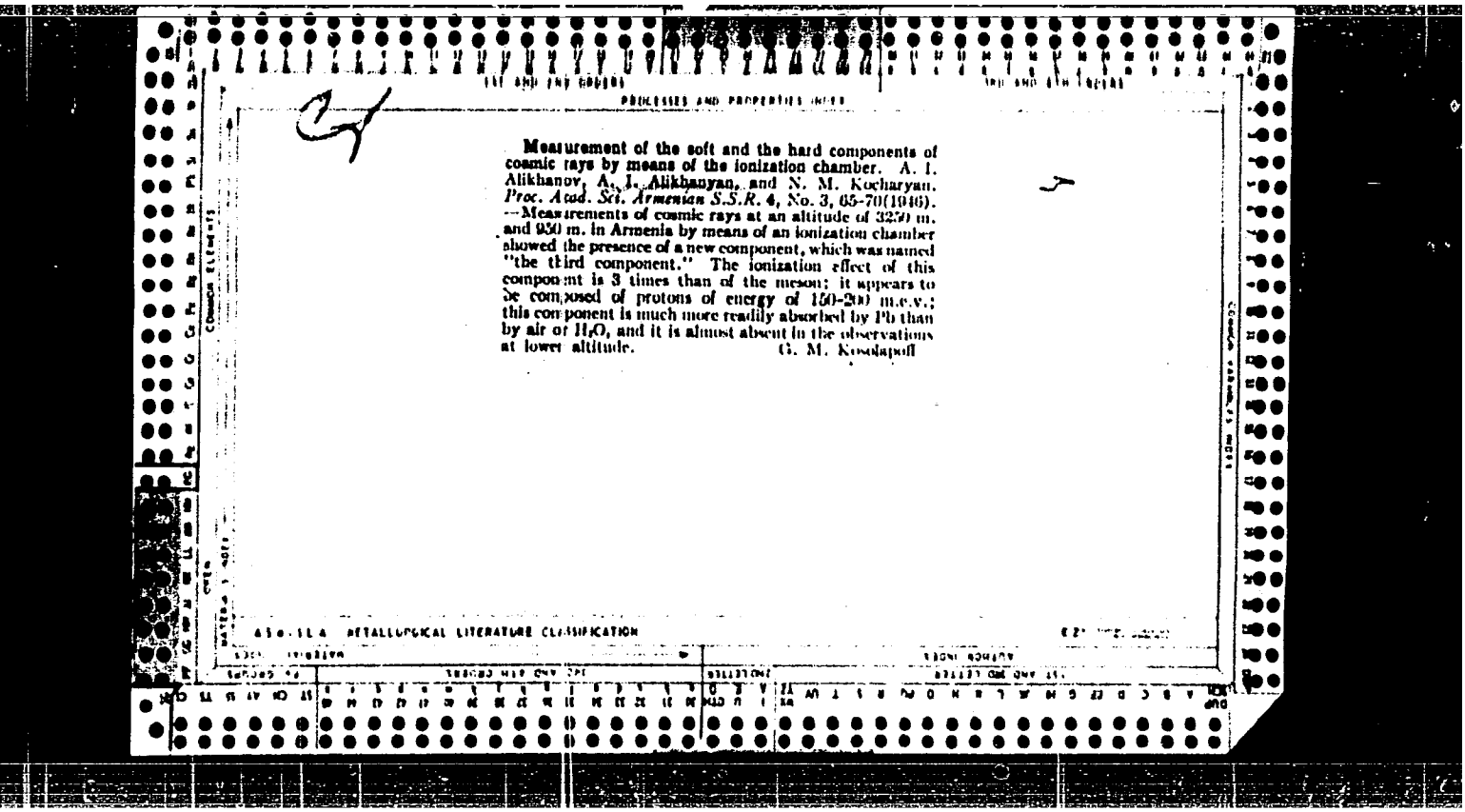
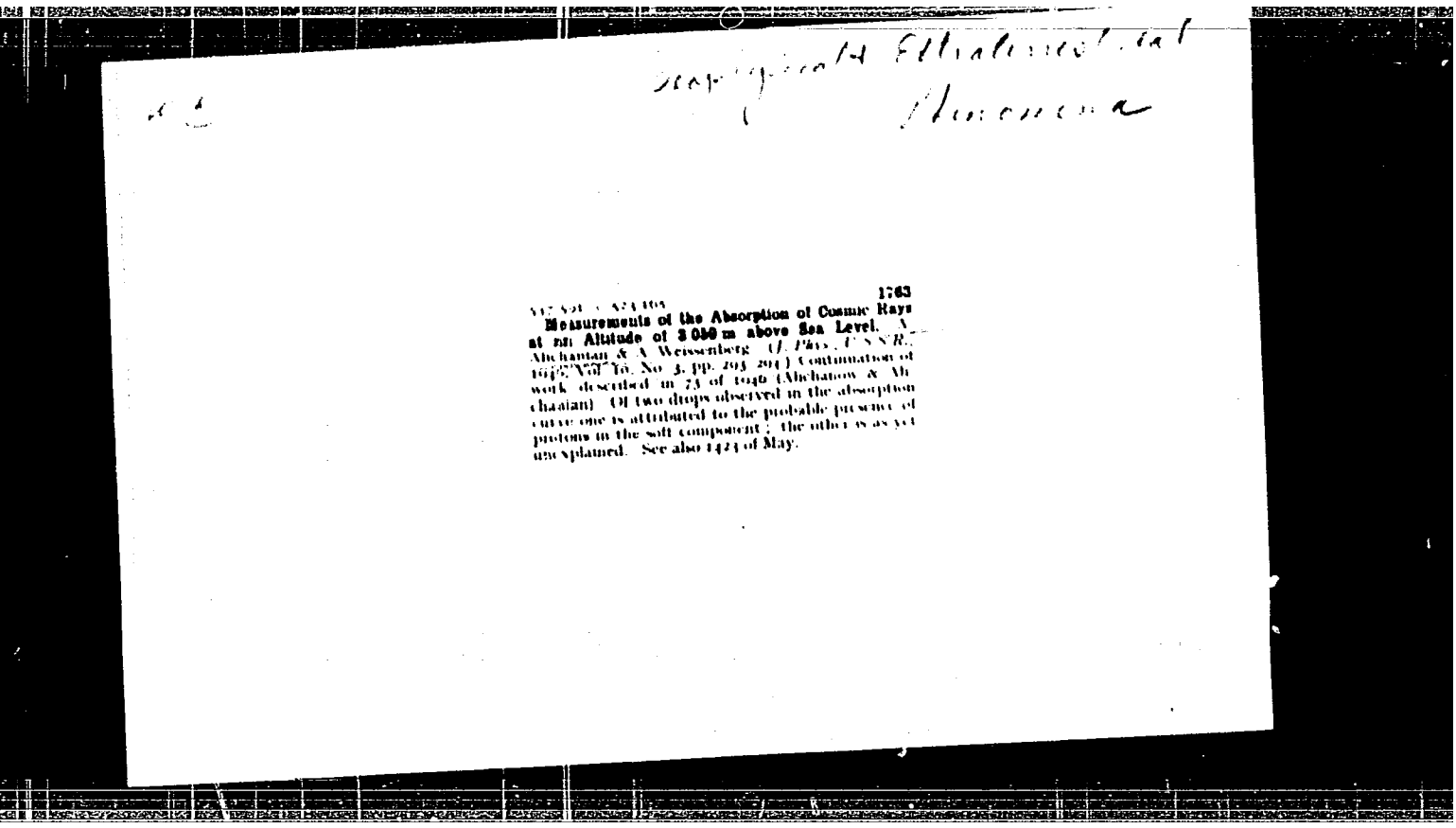
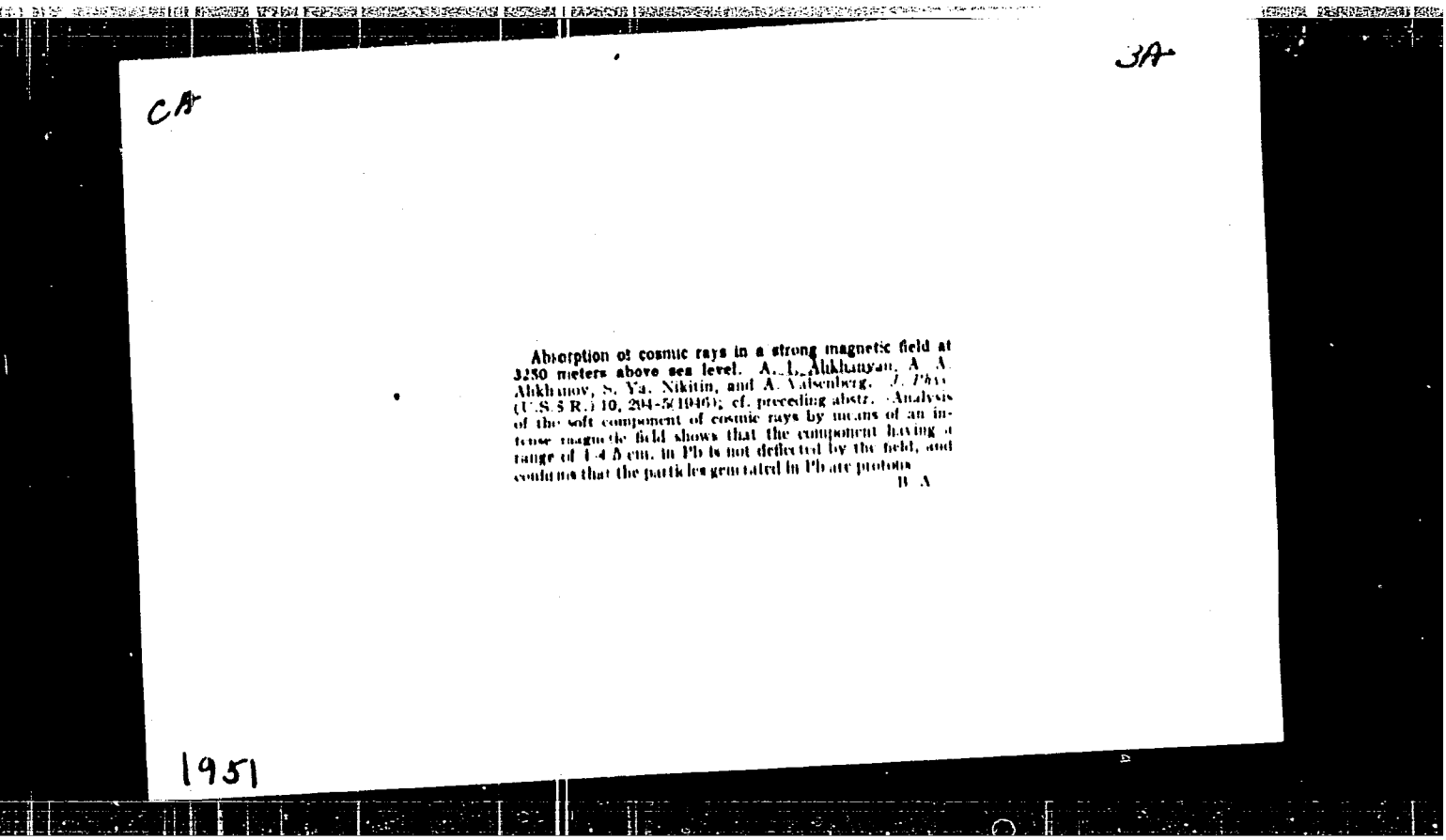


Measurement of the soft and the hard components of cosmic rays by means of the ionization chamber. A. I. Alikhanov, A. I. Alikhanyan, and N. M. Kocharyan. *Proc. Acad. Sci. Armenian S.S.R.* 4, No. 3, 65-70(1946). —Measurements of cosmic rays at an altitude of 3250 m. and 950 m. in Armenia by means of an ionization chamber showed the presence of a new component, which was named "the third component." The ionization effect of this component is 3 times than of the meson; it appears to be composed of protons of energy of 150-200 m.e.v.; this component is much more readily absorbed by Pb than by air or H_2O, and it is almost absent in the observations at lower altitude. G. M. Kosolapoff



1763

Measurements of the Absorption of Cosmic Rays at an Altitude of 3 050 m above Sea Level. A. Alichanian & A. Weissenberg. (*J. Phys. U.S.S.R.*, 1938, Vol. 10, No. 3, pp. 293–294.) Continuation of work described in 73 of 1936 (Alichanow & Alichanian). Of two drops observed in the absorption curve one is attributed to the probable presence of protons in the soft component; the other is as yet unexplained. See also 1424 of May.



CA

3A

Absorption of cosmic rays in a strong magnetic field at 3250 meters above sea level. A. I. Alikhanyan, A. A. Alikhanov, S. Ya. Nikitin, and A. Vaisenberg. *J. Phys. (U.S.S.R.)* 10, 284-5(1946); cf. preceding abstr. Analysis of the soft component of cosmic rays by means of an intense magnetic field shows that the component having a range of 1-4 cm. in Pb is not deflected by the field, and concludes that the particles generated in Pb are protons.
H. A

1951

Geophysical & Extraterrestrial Phenomena

547.591 : 523.165 1764

On Narrow Showers. A. Alikhanian & A. Alexandrian. (*J. Phys., U.S.S.R.*, 1946, Vol. 10, No. 3, pp. 206-207.) From an investigation of cosmic-ray showers at heights of 1000 m and 3250 m it is concluded that there exist (*a*) Auger showers of radius about 100 m, (*b*) narrow showers of radius about 50 cm, the radius decreasing with increase of altitude, and (*c*) dense penetrating showers of undetermined radius.

ALIKHAN'YAN, A.

PA 54T76

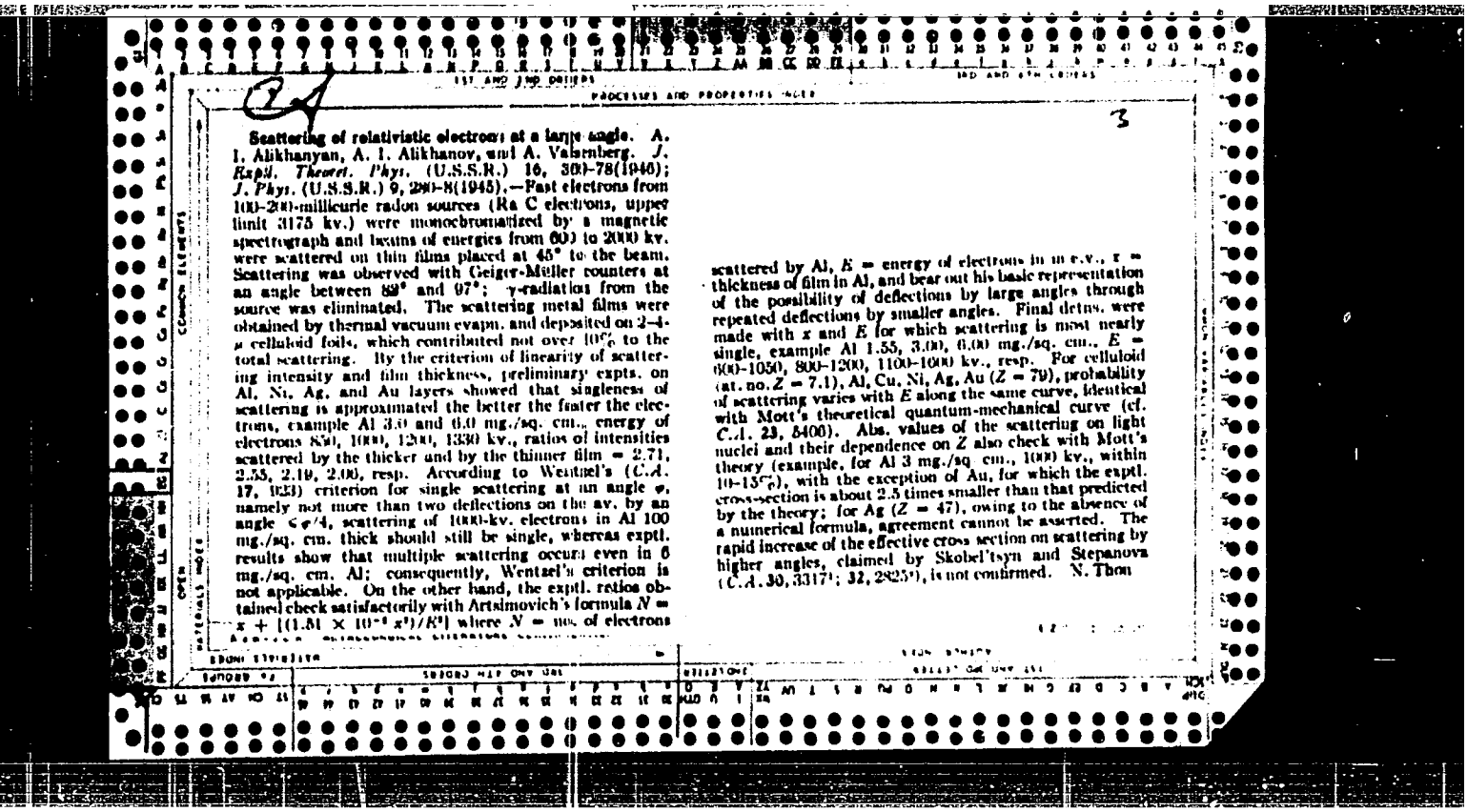
USSR/Nuclear Physics - Cosmic Radiation Nov/Dec 1946
Nuclear Physics - Particles

"Investigation of Narrow Showers at Sea Level," A. Alikhan'yan, N. Khostakovich, Inst Phys Prob, Acad Sci USSR, 5 pp

"Journal of Physics USSR" Vol X, No 6

Determination of transverse dimensions and penetrating power of particles constituting narrow showers of cosmic radiation at sea level, demonstrates that narrow showers are equally decreased when traversing same mass of lead or iron. Received, 17 Aug 1946.

54T76



Scattering of relativistic electrons at a large angle. A. I. Alikhanyan, A. I. Alikhanov, and A. Valsenberg. *J. Exptl. Theoret. Phys.* (U.S.S.R.) 16, 301-78(1946); *J. Phys.* (U.S.S.R.) 9, 289-8(1945).—Fast electrons from 100-200-millicurie radon sources (Ra C electrons, upper limit 3175 kv.) were monochromatized by a magnetic spectrograph and beams of energies from 600 to 2000 kv. were scattered on thin films placed at 45° to the beam. Scattering was observed with Geiger-Müller counters at an angle between 89° and 97°; γ-radiation from the source was eliminated. The scattering metal films were obtained by thermal vacuum evapn. and deposited on 2-4-μ celluloid foils, which contributed not over 10% to the total scattering. By the criterion of linearity of scattering intensity and film thickness, preliminary expts. on Al, Ni, Ag, and Au layers showed that singleness of scattering is approximated the better the faster the electrons, example Al 3.0 and 6.0 mg./sq. cm., energy of electrons 850, 1000, 1200, 1330 kv., ratios of intensities scattered by the thicker and by the thinner film = 2.71, 2.55, 2.19, 2.00, resp. According to Wentzel's (*C.A.* 17, 1033) criterion for single scattering at an angle φ, namely not more than two deflections on the av. by an angle $\leq \varphi/4$, scattering of 1000-kv. electrons in Al 100 mg./sq. cm. thick should still be single, whereas exptl. results show that multiple scattering occurs even in 6 mg./sq. cm. Al; consequently, Wentzel's criterion is not applicable. On the other hand, the exptl. ratios obtained check satisfactorily with Artsimovich's formula $N = x + [(1.81 \times 10^{-5} x^2)/E^2]$ where N = no. of electrons scattered by Al, E = energy of electrons in m.e.v., x = thickness of film in Al, and bear out his basic representation of the possibility of deflections by large angles through repeated deflections by smaller angles. Final detns. were made with x and E for which scattering is most nearly single, example Al 1.55, 3.00, 6.00 mg./sq. cm., E = 600-1050, 800-1200, 1100-1600 kv., resp. For celluloid (at. no. $Z = 7.1$), Al, Cu, Ni, Ag, Au ($Z = 79$), probability of scattering varies with E along the same curve, identical with Mott's theoretical quantum-mechanical curve (cf. *C.A.* 23, 3400). Abs. values of the scattering on light nuclei and their dependence on Z also check with Mott's theory (example, for Al 3 mg./sq. cm., 1000 kv., within 10-15%), with the exception of Au, for which the exptl. cross-section is about 2.5 times smaller than that predicted by the theory; for Ag ($Z = 47$), owing to the absence of a numerical formula, agreement cannot be asserted. The rapid increase of the effective cross section on scattering by higher angles, claimed by Skobel'tsyn and Stepanova (*C.A.* 30, 3317[1]; 32, 2825[1]), is not confirmed. N. Thon

ALIKHAN'YAN, A. I.

[redacted]

54T69

USSR/Nuclear Physics - Cosmic Radiation May 1947
Nuclear Physics - Particles

PA 54T69

"The Existence of a Particle With Mass, Between the Masses of a Mesotron and Proton," A. I. Alikhan'yan, Corr Mem, Acad Sci USSR; A. I. Alikhanov, A. O. Vaysenberg, Academicians, 9 pp

"Zhur Eksp Teor Fiz" Vol XVII No 5

During period 1942-1946 authors were stationed on Mount Alagez, at an altitude of 3,250 m above sea level. Discerned cosmic particles very different from mesotrons or protons. Series of tests revealed data which showed that these particles to be ionized gases, two to three times greater than either protons or

54T69

USSR/Nuclear Physics - Cosmic Radiation (Contd) May 1947

mesotrons. Mass of this intermediate particle is 250 to 2,000 m_o. They are either positive or negative. Authors express gratitude to V. M. Khaitmov and M. I. Dayon.

54T69

ALIKHANYAN, A.I.; ASATIANI, T.L.; MUSKHELISHVILI, G.N.

Air shower research. Part 1. A new method of air shower research. Dokl.AN Arm.SSR 6 no.2:33-37 '47. (MLRA 9:8)

1. Deystvitel'nyy chlen AN Armyanskoy SSR (for Alikhanyan);
2. Fizicheskiy institut Akademii nauk Armyanskoy SSR, Yerevan.
(Cosmic rays)

ALICHANIAN, A.

PA 26T68

USSR/Physics Jan 1947
Particles
Cosmic Radiation

"Study of Atmospheric Showers," A. Alichanian, T. Asatiani, G. Mukhelishvilli, Institute of Physics, Academy of Sciences of the Armenian SSR, 7 pp

"Journal of Physics" Vol XI, No 1 pp 16-22

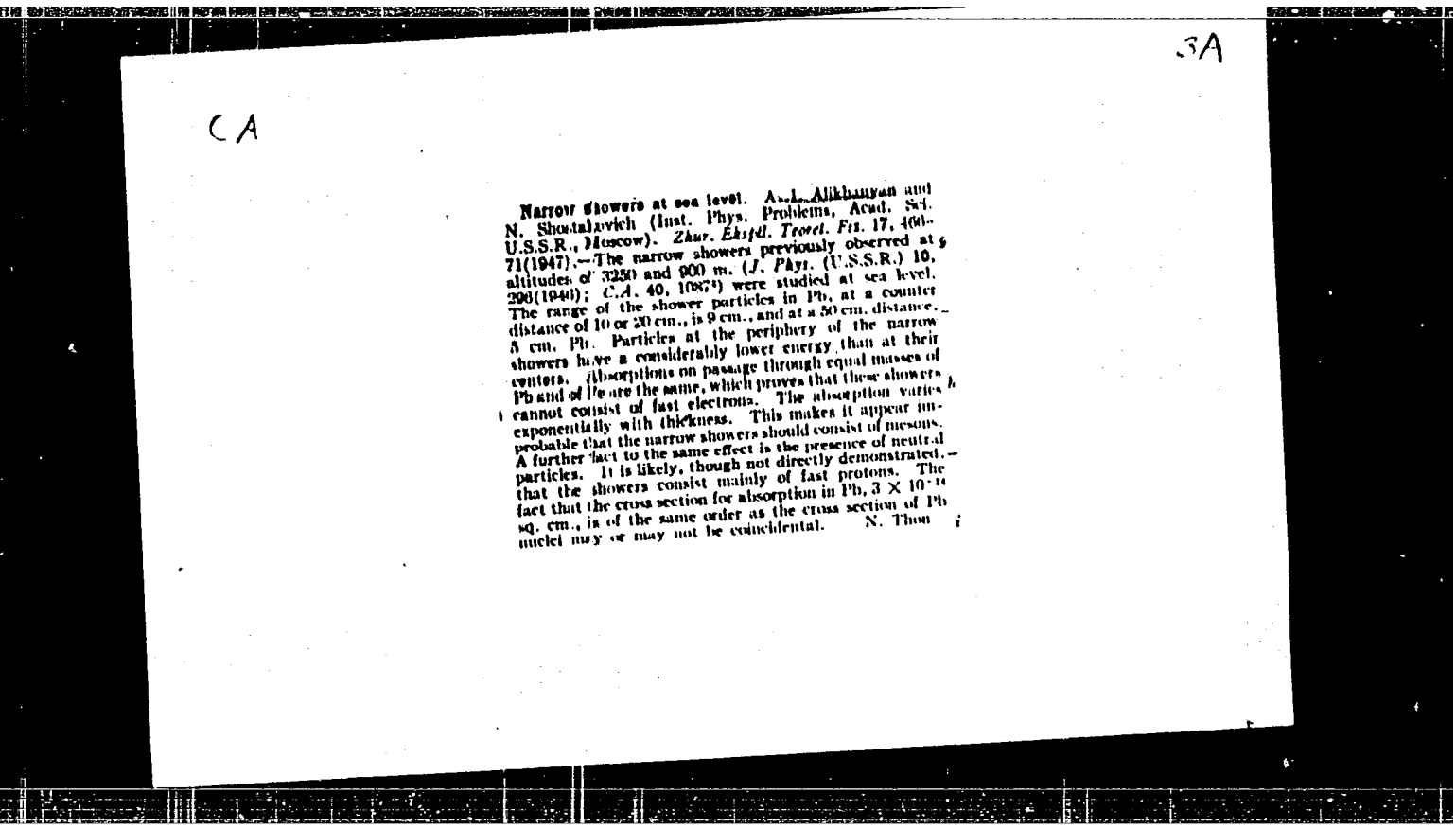
Results are given of experiments in 1945 on Mt Alagez, which detected by flashing neon counters the presence of so-called "narrow showers" of less particle-density and different from ordinary showers and auger ones. Graphs show the relation

PS 26T68

USSR/Physics (Contd) Jan 1947

between number of showers and number of flashed neon tubes. The particle in the new phenomenon is still unknown.

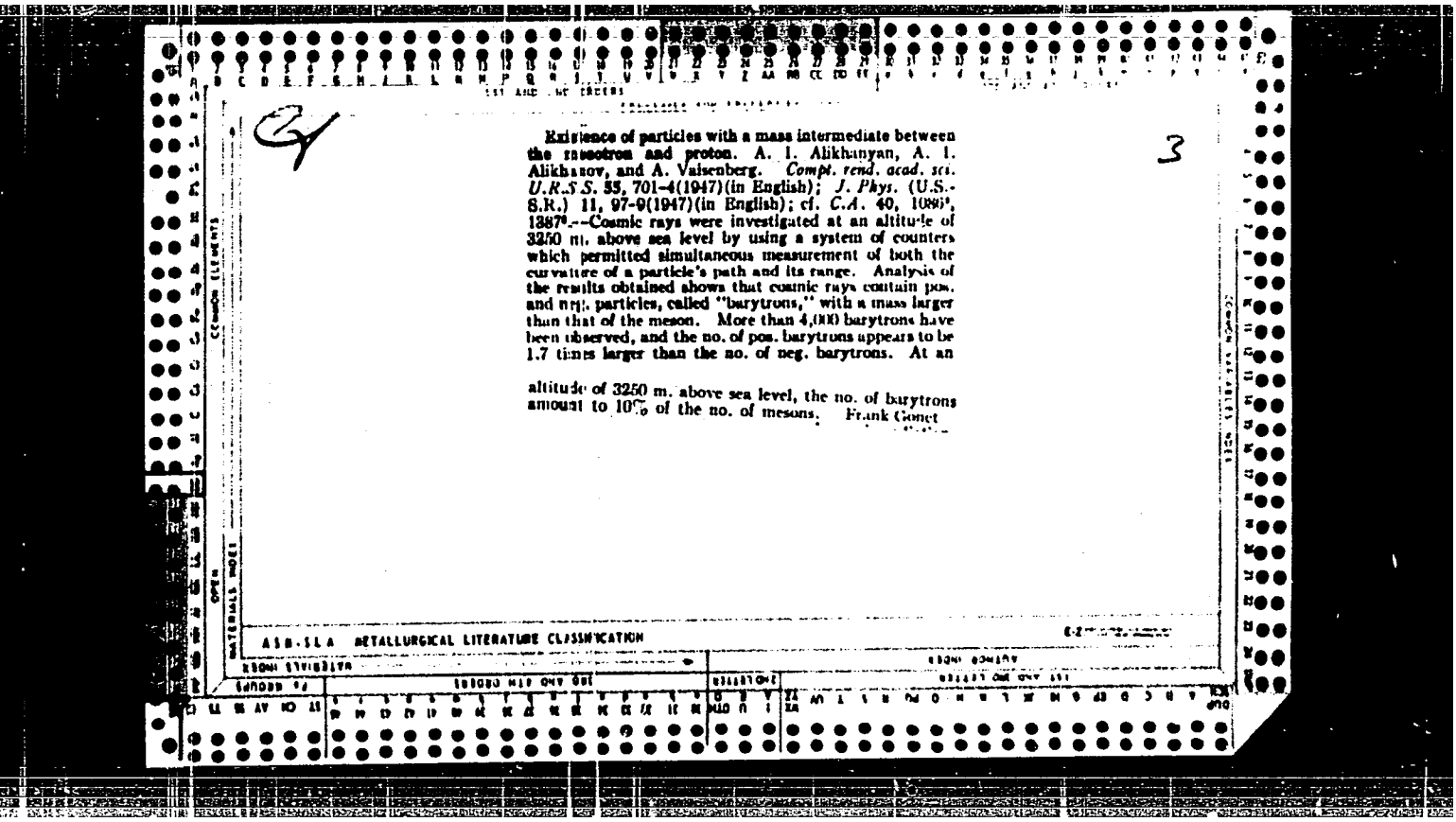
PS 26T68



CA

3A

Narrow showers at sea level. A. I. Alikhanyan and N. Shostakovich (Inst. Phys. Problems, Acad. Sci. U.S.S.R., Moscow). *Zhur. Eksptl. Teoret. Fiz.* 17, 460–71(1947).—The narrow showers previously observed at altitudes of 3250 and 900 m. (*J. Phys.* (U.S.S.R.) 10, 290(1946); *C.A.* 40, 1087ᵍ) were studied at sea level. The range of the shower particles in Pb, at a counter distance of 10 or 20 cm., is 9 cm., and at a 50 cm. distance, 5 cm. Pb. Particles at the periphery of the narrow showers have a considerably lower energy than at their centers. Absorptions on passage through equal masses of Pb and of Fe are the same, which proves that these showers cannot consist of fast electrons. The absorption varies exponentially with thickness. This makes it appear improbable that the narrow showers should consist of mesons. A further fact to the same effect is the presence of neutral particles. It is likely, though not directly demonstrated, that the showers consist mainly of fast protons. The fact that the cross section for absorption in Pb, 3×10^{-24} sq. cm., is of the same order as the cross section of Pb nuclei may or may not be coincidental. N. Thon



Existence of particles with a mass intermediate between the mesotron and proton. A. I. Alikhanyan, A. I. Alikhanov, and A. Vaisenberg. *Compt. rend. acad. sci. U.R.S.S.* **55**, 701–4(1947)(in English); *J. Phys.* (U.S.S.R.) **11**, 97–9(1947)(in English); cf. *C.A.* **40**, 1088⁹, 1387⁹.—Cosmic rays were investigated at an altitude of 3250 m. above sea level by using a system of counters which permitted simultaneous measurement of both the curvature of a particle's path and its range. Analysis of the results obtained shows that cosmic rays contain pos. and neg. particles, called "barytrons," with a mass larger than that of the meson. More than 4,000 barytrons have been observed, and the no. of pos. barytrons appears to be 1.7 times larger than the no. of neg. barytrons. At an altitude of 3250 m. above sea level, the no. of barytrons amount to 10% of the no. of mesons. Frank Gonet

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

ALIKHANYAN, A.

USSR/Nuclear Physics - Cosmic Rays Dec 1947
Nuclear Physics - Mesons

PA 60T80

"Mass Spectra of Varitrons," A. Alikhanyan, Corr Mem, Acad Sci USSR; A. Alikhanov, Academician; V. Morozov, G. Mushkelishvili, A. Khrimyan, Phys Inst, Acad Sci, Armenian SSR, 8 pp

"Dok Akad Nauk SSSR, Nova Ser" Vol LVIII, No 7

Authors reported in previous article that, as a result of magnetic analysis of composition of cosmic radiation at an altitude of 3,250 meters, new particles discovered which have a mass greater than the mass of the mesotron. Also presented data

60T80

USSR/Nuclear Physics - Cosmic Rays Dec 1947
(Contd)

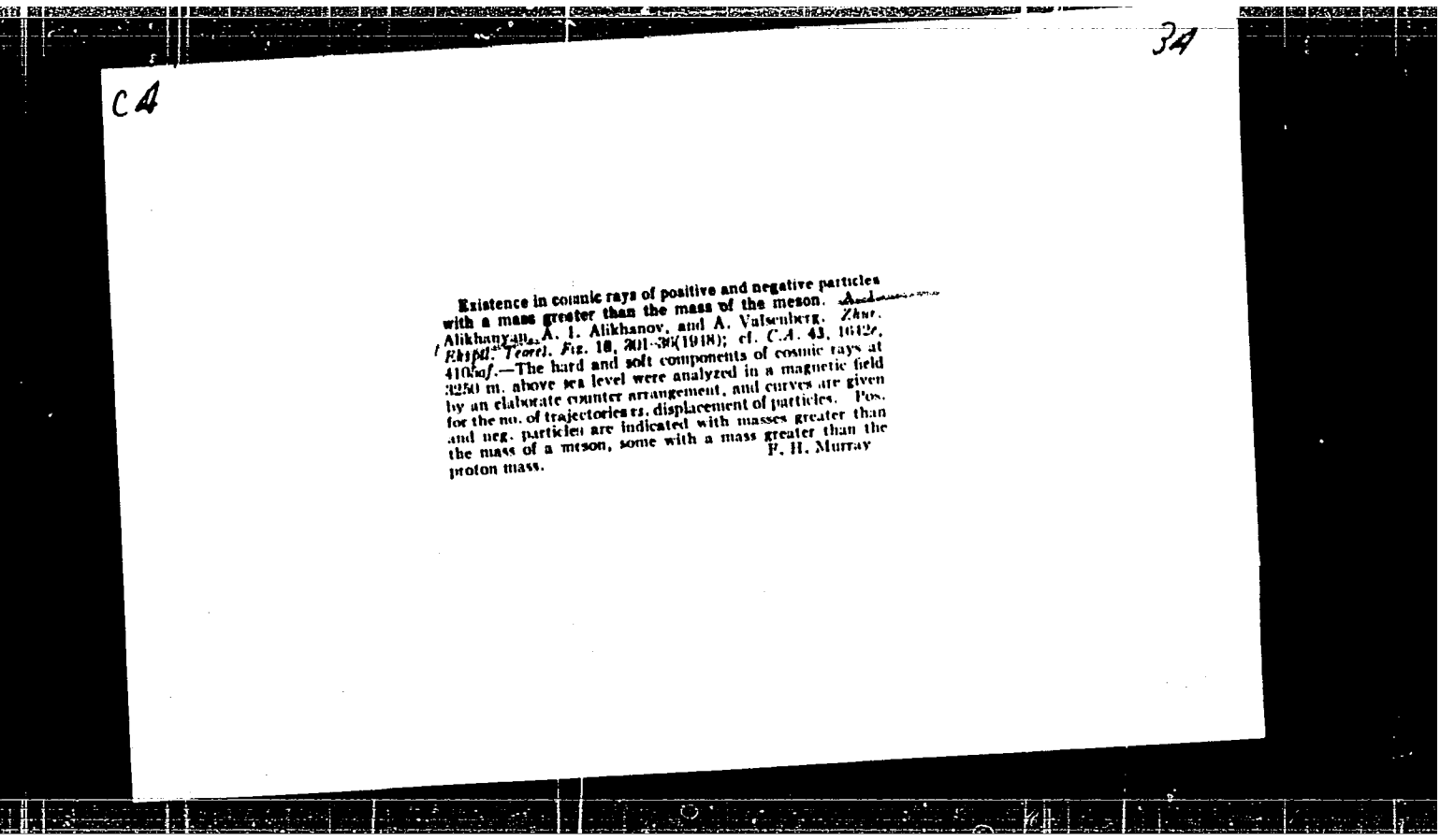
showing that, in cosmic radiation, there are particles with a positive and negative sign, the mass of which exceeds that of the proton. This new group of elementary particles named varitrons. Present article presents results of spectrum analysis of these new particles.

60T80

ALIKHANYAN, A. I.

25353. ALIKHANYAN, A. I.
Kosmicheskie Luchi Beseda s Laureatom Stalinskoy Premii A. I. Alikhanyanom.
Smena, 1948, No. 14, s. 14

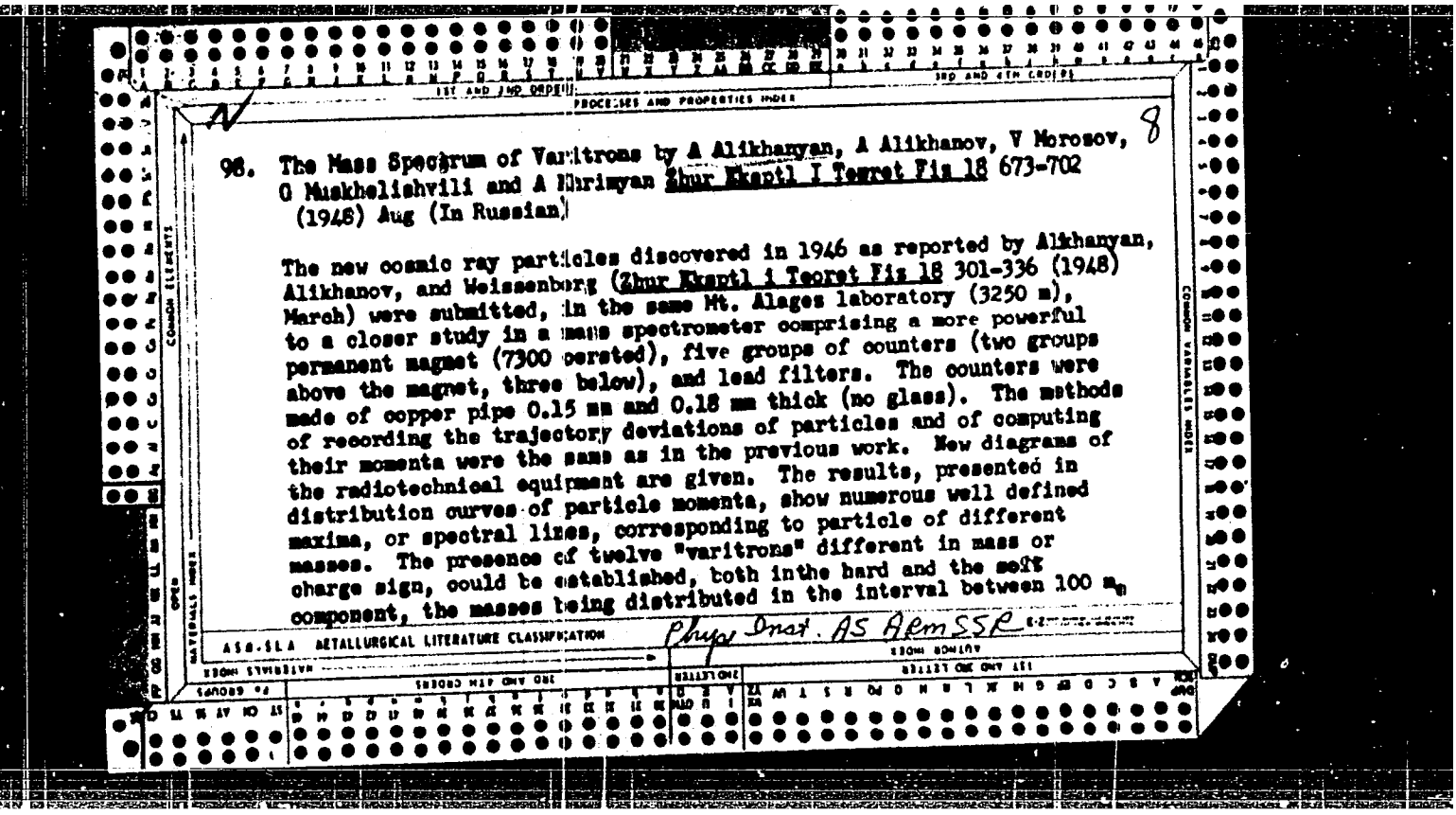
SO: Letopis' Zhurnal Statey, No. 30, Moscow, 1948



C4

34

Existence in cosmic rays of positive and negative particles with a mass greater than the mass of the meson. A. I. Alikhanov, and A. Valsenberg. *Zhur. Eksptl. Teoret. Fiz.* 10, 201-38(1940); cf. *C.A.* 43, 1642*f*, 4106*af*.—The hard and soft components of cosmic rays at 3250 m. above sea level were analyzed in a magnetic field by an elaborate counter arrangement, and curves are given for the no. of trajectories vs. displacement of particles. Pos. and neg. particles are indicated with masses greater than the mass of a meson, some with a mass greater than the proton mass.
P. H. Murray



98. The Mass Spectrum of Varitrons by A Alikhanyan, A Alikhanov, V Morosov, O Muskhelishvili and A Shirinyan Zhur Eksptl i Teoret Fiz 18 673-702 (1948) Aug (In Russian)

The new cosmic ray particles discovered in 1946 as reported by Alikhanyan, Alikhanov, and Weissenberg (Zhur Eksptl i Teoret Fiz 18 301-336 (1948) March) were submitted, in the same Mt. Alages laboratory (3250 m), to a closer study in a mass spectrometer comprising a more powerful permanent magnet (7300 oersted), five groups of counters (two groups above the magnet, three below), and lead filters. The counters were made of copper pipe 0.15 mm and 0.18 mm thick (no glass). The methods of recording the trajectory deviations of particles and of computing their momenta were the same as in the previous work. New diagrams of the radiotechnical equipment are given. The results, presented in distribution curves of particle momenta, show numerous well defined maxima, or spectral lines, corresponding to particle of different masses. The presence of twelve "varitrons" different in mass or charge sign, could be established, both inthe hard and the soft component, the masses being distributed in the interval between 100 m_e

Phys Inst. AS ArmSSR

and 25,000 m_0. In the spectrum of the hard component, the steep negative slope of some of the maxima must be interpreted as due to a considerable number of varitrons of a given mass generated, with a maximum momentum, as a result of a disintegration of heavier varitrons which had spent their velocity in the atmosphere. It can also be inferred from these considerations that the half-life of the varitrons is of the same order as that of the mesotron. The presence of rapid protons in cosmic radiation is established by direct measurement, and from the value of the positive excess in the hard component it can be estimated that not less than 7% of the total intensity of cosmic rays must be attributed to rapid protons.

ALIKHANYAN A. I.

USSR/Academy of Sciences - Physics - Awards Sep 48

"Stalin Prizes for Physics in 1947" 2 pp

"Uspekhi Fiz Nauk" Vol XXXVI, No 1

Summarizes Stalin Prize awards for 1947. First prize was awarded to Abram Issakovich Alikhanov and Artem' Isaakovich Alikhanyan for study of problems connected with cosmic rays at their laboratory on Mt Alagez. Second prize was awarded to Aleksandr Iosifovich Shal'nikov for his experiments in superconductivity.

PA 48T49T2

ALIKHANYAN, A.

USSR/Nuclear Physics - Cosmic Radiation Jun 48
Nuclear Physics - Particles

"Spectrum of Varitron Mass at 3,250 Meters Above Sea Level," A. Alikhanyan, Corr Mem, Acad Sci USSR; A. Vaysenberg, V. Kharitonov, M. Deyon, Inst of Phys Problems, Acad Sci USSR, and Phys Inst, Acad Sci Armenian SSR, 4 pp

"Dok Ak Nauk SSSR" Vol LX, No 9 pp 1515-18

Investigation on subject began in 1946 in Cosmic Ray Laboratory on Mount Alagez. Results published in various journals, including Vest Ak Nauk SSSR, No 5, 1947. (See Abstract 54T69). Authors discovered particles intermediate between mesotrons and [redacted]

6/49T91

IA 6/49T91

USSR/Nuclear Physics - Cosmic Radiation Jun 48
(Contd)

protons, calling them varitrons because they can be either positive or negative. Work was resumed in 1947. Describes improvements in apparatus. Tabulates masses and charges of particles observed. Graphs show spectra of particles which passed through 0.8-cm lead sheet but were absorbed in 1.05 cm lead sheet. Consist of a series of well defined maxima and minima. Authors consider this supports their previous hypotheses on ionization of particles. Submitted 29 Apr 48.

[redacted]

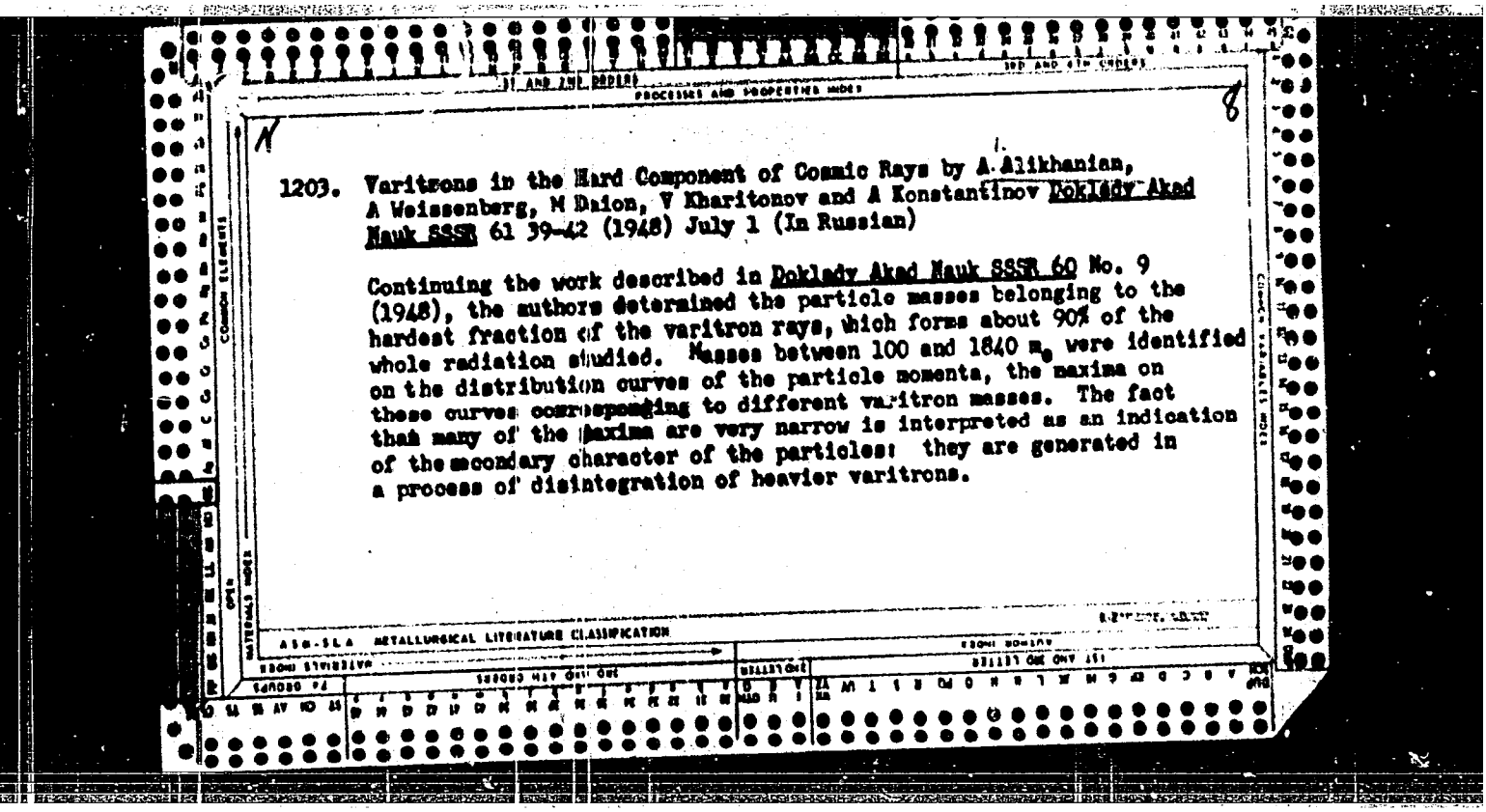
6/49T91

ALIKHANYAN, A. I.

1202. Varitron Mass Spectrum. II. by A. I. Alikhanyan, V. M. Morozov and A. V. Khrimiam Dok. Akad. Nauk SSSR 61, 35-38 (1948) July 1 (In Russian)

In a previous paper (Doklady Akad Nauk SSSR 58 No. 7 (1947) the authors published varitron masses obtained from deviations of cosmic ray trajectories in a magnetic field. The ranges covered were from 1.2 to 5.6 cm Pb. In the present paper more accurate mass values are given for the same range interval, as well as values corresponding to a range exceeding 5.6 cm Pb. The numbersous maxima on the distribution shows the minimum momentum of a particle with a given mass; the position of this abrupt slope permits the determination of the particle's mass. An important interpretation is given to the fact that the negative slope of some of the maxima is abrupt too. An upper limit for the momentum can occur in cases where a particle of a given mass is generated through disintegration of a heavier particle stopped in air; the outcome of such a disintegration of a particle, under the conditions observed, must be the formation of 2 particles, one charged, and one neutral or a photon. A tentative mass determination is given for parent varitrons generating the observed particles.

Phys. Inst. AS Arm SSR, Inst Physical Problems AS USSR



1203. Varitrons in the Hard Component of Cosmic Rays by A Alikhanian, A Weissenberg, M Dalon, V Kharitonov and A Konstantinov Doklady Akad Nauk SSSR 61 39-42 (1948) July 1 (In Russian)

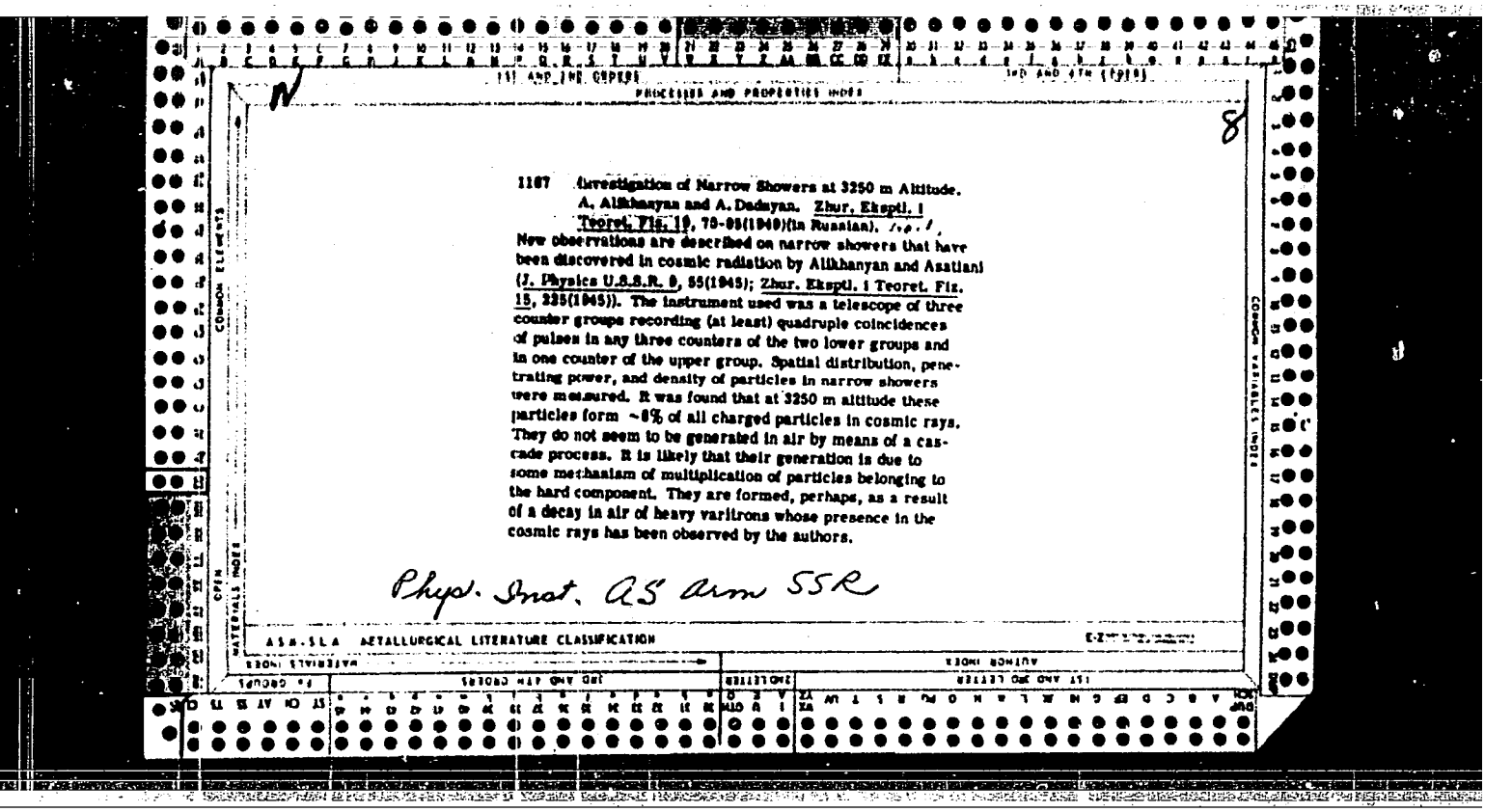
Continuing the work described in Doklady Akad Nauk SSSR 60 No. 9 (1948), the authors determined the particle masses belonging to the hardest fraction of the varitron rays, which forms about 90% of the whole radiation studied. Masses between 100 and 1840 m_e were identified on the distribution curves of the particle momenta, the maxima on these curves corresponding to different varitron masses. The fact that many of the maxima are very narrow is interpreted as an indication of the secondary character of the particles: they are generated in a process of disintegration of heavier varitrons.

ALIKHANYAN, A.

35811. Issledovaniye spektra mass varitronov. (soobsheh) i.- avt: A. Alikhanyan B. Morozova. Khrimyan (I Dr.) zhurnal eksperim. i teoret. fiziki, 1949 vyp. 11, S. 1021-56- Bibliogr: S. 1056

ALIKHANYAN, A., MOROZOV, V., KHRIMYAN, A. ETC.

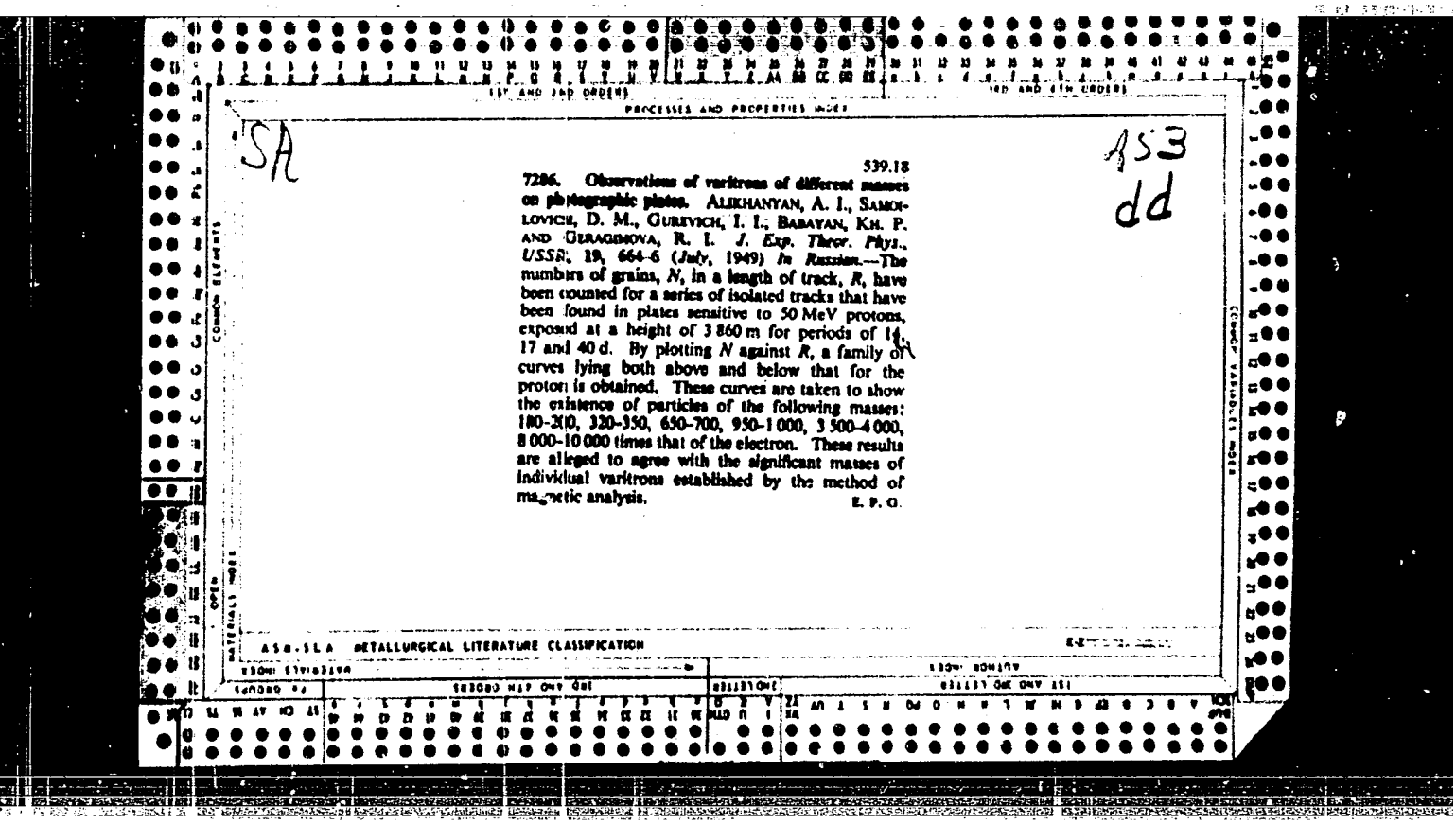
SO: Letopis' Zhurnal'nykh Statey, Vol. 49, Moskva, 1949



1187 Investigation of Narrow Showers at 3250 m Altitude. A. Alikhanyan and A. Dadayan. Zhur. Eksptl. i Teoret. Fiz. 19, 75-88(1949)(in Russian). /e.g./

New observations are described on narrow showers that have been discovered in cosmic radiation by Alikhanyan and Asatiani (J. Physics U.S.S.R. 8, 55(1945); Zhur. Eksptl. i Teoret. Fiz. 15, 335(1945)). The instrument used was a telescope of three counter groups recording (at least) quadruple coincidences of pulses in any three counters of the two lower groups and in one counter of the upper group. Spatial distribution, penetrating power, and density of particles in narrow showers were measured. It was found that at 3250 m altitude these particles form ~8% of all charged particles in cosmic rays. They do not seem to be generated in air by means of a cascade process. It is likely that their generation is due to some mechanism of multiplication of particles belonging to the hard component. They are formed, perhaps, as a result of a decay in air of heavy varitrons whose presence in the cosmic rays has been observed by the authors.

Phys. Inst. AS Arm SSR



539.18

7286. **Observations of varitrons of different masses on photographic plates.** ALIKHANYAN, A. I., SAMOILOVICH, D. M., GUREVICH, I. I., BABAYAN, KH. P. AND GERASIMOVA, R. I. *J. Exp. Theor. Phys., USSR*, 19, 664-6 (*July*, 1949) *In Russian.*—The numbers of grains, *N*, in a length of track, *R*, have been counted for a series of isolated tracks that have been found in plates sensitive to 50 MeV protons, exposed at a height of 3 860 m for periods of 14, 17 and 40 d. By plotting *N* against *R*, a family of curves lying both above and below that for the proton is obtained. These curves are taken to show the existence of particles of the following masses: 180-210, 320-350, 650-700, 950-1 000, 3 500-4 000, 8 000-10 000 times that of the electron. These results are alleged to agree with the significant masses of individual varitrons established by the method of magnetic analysis.

E. P. O.

ALIKHANYAN, A. I.

USSR/Nuclear Physics - Varitrons Jul 49
Nuclear Physics - Cosmic Rays

"Disintegration of Heavy Varitrons," A. I. Alikhanyan, D. M. Samoylovich, I. I. Gurevich, Kh. P. Babayan, Phys Inst, Acad Sci Armenian SSR, Inst of Phys Problems, Acad Sci USSR, 4 pp

"Zhur Eksper i Teoret Fiz" Vol XIX, No 7, 647

Results of investigations of traces caused by cosmic particles in photographic emulsions. Established that at least six groups of trajectories were caused by varitrons with masses 180-200, 320-350, 650-700, 950-1,000, 3,500-4,000 and 8,000-[redacted]. 51/49T55

USSR/Nuclear Physics - Varitrons (Cont'd) Jul 49

10,000 times the electron mass. Submitted 9 Apr 49.

51/49T55

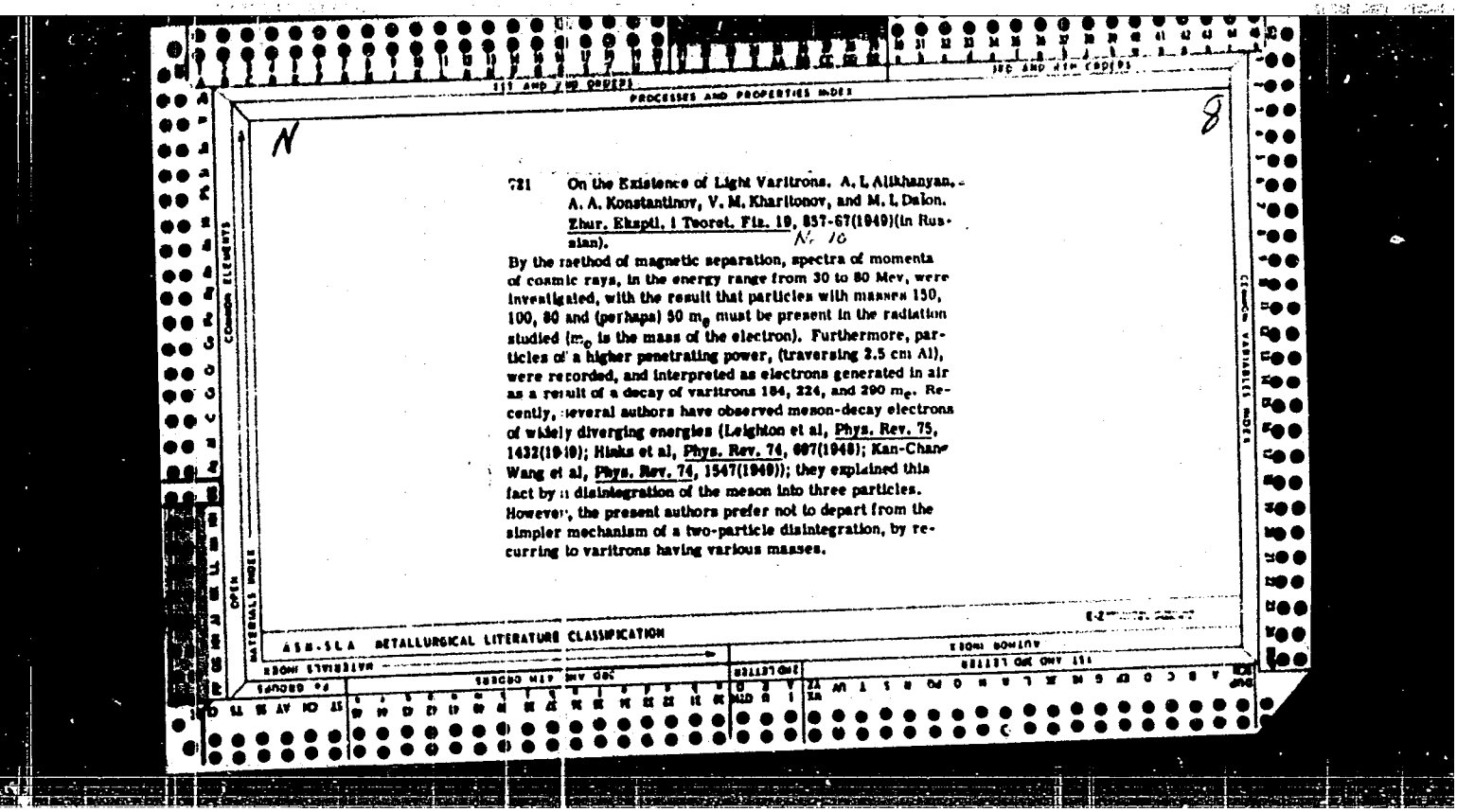
ALIKHANYAN, A. I.

Alikhanyan, A. I., Dayon, M. I., and Kharitonov, V. M., Generation of protons and varitrons by a neutral component of cosmic radiation. P. 739

The generation of charged particles in lead, was observed at an altitude of 3250 m. over sea level. This generation was caused by the neutral component of cosmic radiation. A magnetic analysis of the charged particles (originating in the lead) showed that they are protons and varitrons. The assumption is made that the protons appear as a result of the exchange of the charge which a fast neutron experiences at interaction with a nuclear particle. It is possible that the varitrons which were observed during the experiment originate at this exchange.

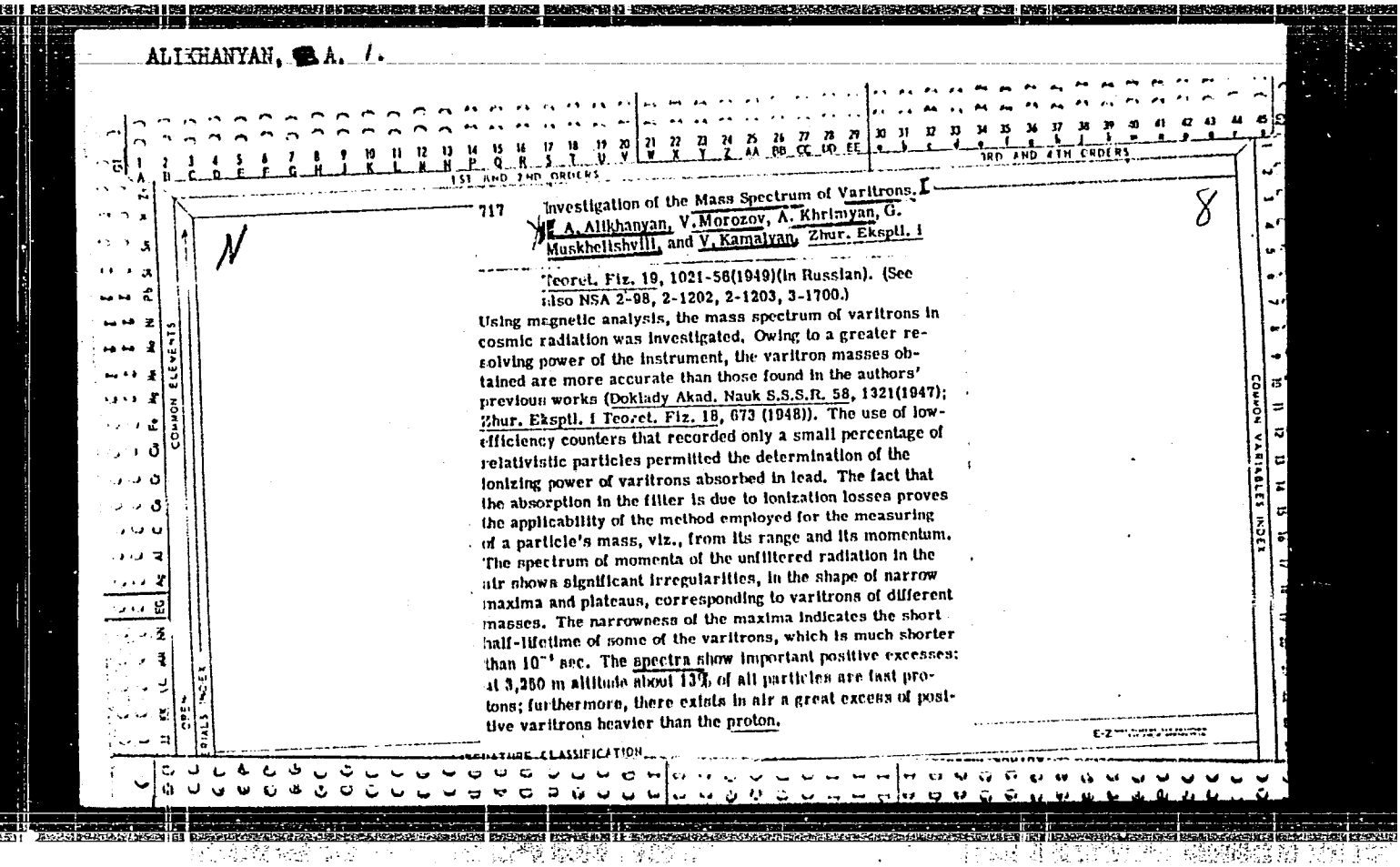
Inst. of Problems in Physics, Acad. of Sci., USSR
Inst. of Physics, Acad. of Sci., Of Armenian SSR
April 20, 1949

SO: Journal of Experimental and Theoretical Physics, (USSR) 19, No. 8 (1949)



721 On the Existence of Light Varitrons. A. I. Alikhanyan, A. A. Konstantinov, V. M. Kharitonov, and M. I. Dalon. Zhur. Eksptl. i Teoret. Fiz. 19, 857-67(1949)(In Russian).

By the method of magnetic separation, spectra of momenta of cosmic rays, in the energy range from 30 to 80 Mev, were investigated, with the result that particles with masses 150, 100, 80 and (perhaps) 50 m_e must be present in the radiation studied (m_e is the mass of the electron). Furthermore, particles of a higher penetrating power, (traversing 2.5 cm Al), were recorded, and interpreted as electrons generated in air as a result of a decay of varitrons 184, 224, and 290 m_e. Recently, several authors have observed meson-decay electrons of widely diverging energies (Leighton et al, Phys. Rev. 75, 1432(1949); Hinks et al, Phys. Rev. 74, 697(1948); Kan-Chang Wang et al, Phys. Rev. 74, 1547(1949)); they explained this fact by a disintegration of the meson into three particles. However, the present authors prefer not to depart from the simpler mechanism of a two-particle disintegration, by recurring to varitrons having various masses.

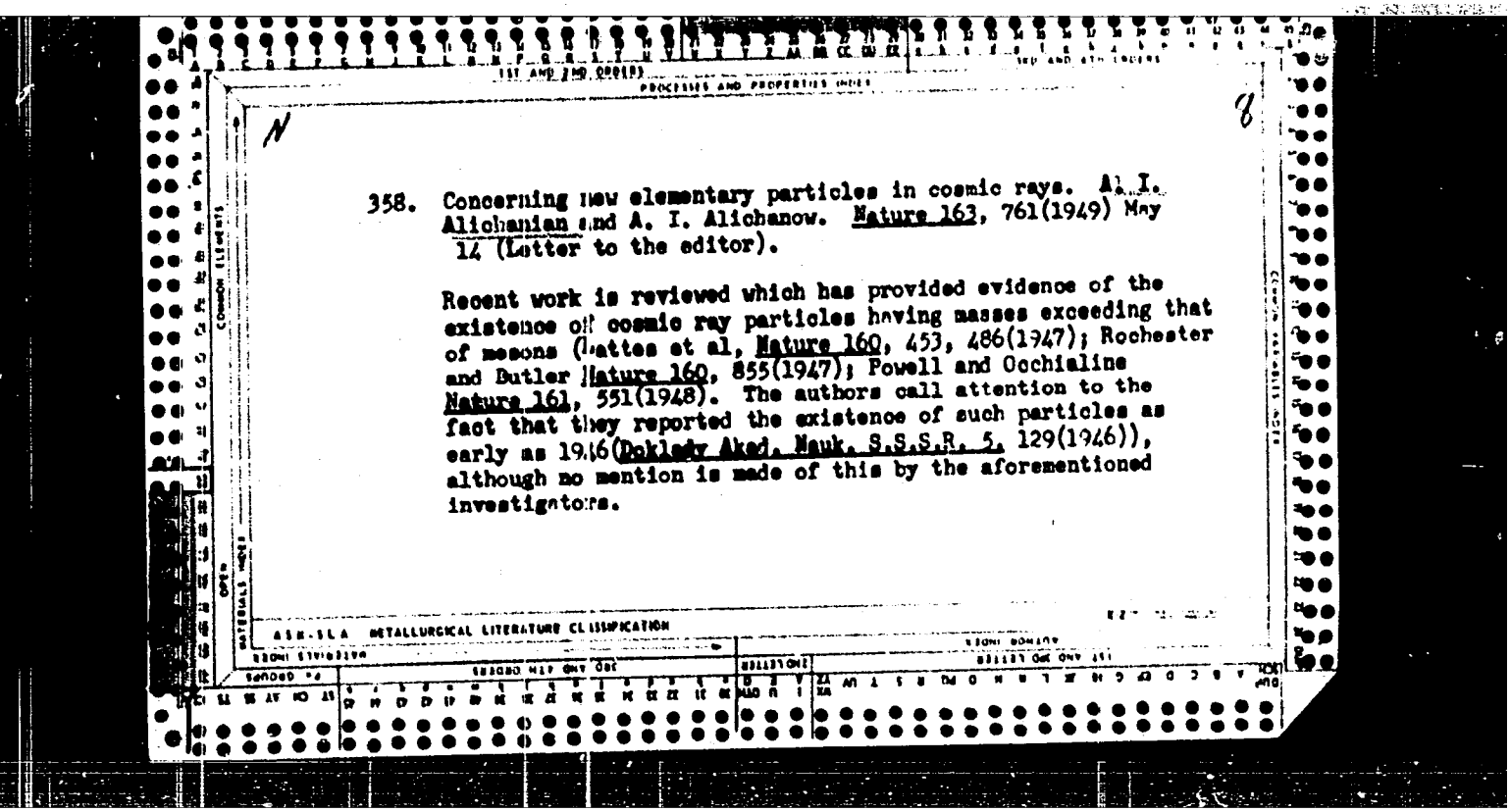


ALIKHANYAN, A. I.

717 Investigation of the Mass Spectrum of Varitrons. I

A. Alikhanyan, V. Morozov, A. Khrimyan, G. Muskhelishvili, and V. Kamalyan, Zhur. Eksptl. i Teoret. Fiz. 19, 1021-56(1949)(In Russian). (See also NSA 2-98, 2-1202, 2-1203, 3-1700.)

Using magnetic analysis, the mass spectrum of varitrons in cosmic radiation was investigated. Owing to a greater resolving power of the instrument, the varitron masses obtained are more accurate than those found in the authors' previous works (Doklady Akad. Nauk S.S.S.R. 58, 1321(1947); Zhur. Eksptl. i Teoret. Fiz. 18, 673 (1948)). The use of low-efficiency counters that recorded only a small percentage of relativistic particles permitted the determination of the ionizing power of varitrons absorbed in lead. The fact that the absorption in the filter is due to ionization losses proves the applicability of the method employed for the measuring of a particle's mass, viz., from its range and its momentum. The spectrum of momenta of the unfiltered radiation in the air shows significant irregularities, in the shape of narrow maxima and plateaus, corresponding to varitrons of different masses. The narrowness of the maxima indicates the short half-lifetime of some of the varitrons, which is much shorter than 10^{-4} sec. The spectra show important positive excesses: at 3,250 m altitude about 13% of all particles are fast protons; furthermore, there exists in air a great excess of positive varitrons heavier than the proton.



358. Concerning new elementary particles in cosmic rays. A. I. Alichanian and A. I. Alichanow. Nature 163, 761(1949) May 14 (Letter to the editor).

Recent work is reviewed which has provided evidence of the existence of cosmic ray particles having masses exceeding that of mesons (Lattes et al, Nature 160, 453, 486(1947); Rochester and Butler Nature 160, 855(1947); Powell and Occhialine Nature 161, 551(1948). The authors call attention to the fact that they reported the existence of such particles as early as 1946 (Doklady Akad. Nauk. S.S.S.R. 5, 129(1946)), although no mention is made of this by the aforementioned investigators.

53.

S.A.
Sedlacek A.

539.18 : 537.591.1

6771. The varitrons. A. I. ALIKHANYAN AND A. I. ALIKHANOV. *Zh. Eksper. Teor. Fiz.*, 21, 1023–44 (*No. 9, 1951*) *In Russian.*

First of a series on the latest discoveries relating to the fundamental particles. The authors analyse their experimental results, disclosed between 1947 and 1950, which led them to conclude that there exist various masses, different from the masses of the electron, proton, meson or μ-meson, and to which they gave a general name the "varitrons." A considerable part of the paper is devoted to the answer to the criticism by J. Daudin [Abstr. 8230 (1950)] alleging that their results may be due to an error caused by the presence of electrons not cut off by the filters. The authors give a detailed analysis of all possible sources of errors, to demonstrate that these errors could not essentially affect their results even in their initial experiments and that they were reduced to an insignificant factor in their latest experiments where the methods were essentially perfected. The apparatus is described in some detail, especially their latest mass spectrometer, where the field used in the experiments was up to 10 500 oersted, with 100 × 30 cm pole faces and 12 cm interpole. In this field five double layers of mutually perpendicular counting tubes were installed, one at the entrance, one at the end and three in between. Apart from this, a number of absorbing screens, such as lead or graphite slabs, were installed at the end of the particle trajectories, after passing the field with the layers of counting tubes between them and at their sides. In this way the trajectory of each particle before and after its absorption could be studied in detail. The weight of the spectrometer was about 76 tons. As a result of the statistical analysis of the spectra of the masses thus obtained, the authors succeeded, with the aid of their apparatus installed at 3250 m above sea level, in segregating groups of particles with the mass 270 m_e and in detecting particles with masses 500–600 m_e and 900–100 m_e.

N. B. JAPOLSKY

USSR/Mathematics - Magnetic Spectrometer 1 Sep 51

"Concerning the New Magnetic Spectrometer," A. Alikhanyan, Corr Mem, Acad Sci USSR, A. Dadayan, N. Shostakovich, G. Akopyan, M. Dayon, Phys Inst, Acad Sci Armenian SSR

"Dok Ak Nauk SSSR" Vol LXX, No 1, pp 37-40

Describes the new magnetic spectrometer of large resolving power, set up at an altitude of 3,200 meters above sea level and intended for measuring the spectra of pulses (momenta) and masses of particles composing cosmic rays. The central part of this device is the electromagnet weighing 76 tons, in the gap of which has been erected a series of small-diam

221T65

counters that permit one to det the coordinates of the particles in space. The spectra of protons obtained show that the new magnetic spectrograph actually possesses large resolving power and enables one to distinguish particles with masses less than 1,000 m_e of the proton. The results obtained indicate that the distribution trail of protons practically disappears for values of masses equal to 1,400 m_e (the mass of the proton). During the entire time of the measurements on pulses (momenta), never was a trajectory of particles of neg sign recorded or absorbed in the filters. Submitted 4 Jul 51.

221T65

ALIKHANYAN, A.

ALIKHANYAN, A.

USSR/Nuclear Physics - Meson, Ionizing Particles 11 Sep 51

"Determining the Ionizing Ability of Particles with Mass Intermediate Between That of Meson and Proton," V. Kharitonov, T. Marikyan, A. Alikhanyan, Corr Mem, Acad Sci USSR Phy Inst, Acad Sci Armenian SSR

"Dok Ak Nauk SSSR" Vol LXXX, No 2, pp 201-204

Concludes that particles of intermediate mass cannot be identical with mesons or electrons, which latter are stopped because of ionization losses, and that mean value of the mass of the intermediate particles which is detd according to the mean ionizing capacity and momentum (pulse) (or according to mean ionizing power and flight) coincides with the value of the mass detd according to mean momentum (pulse) and flight. Masses of intermediate particles are grouped around 2 values: 600 and 950 m_e. Submitted 23 Jul 51.

PA 213178

USSR/Nuclear Physics - Cosmic Rays 11 Feb 52

"Particles With Mass 600-1,000 m_e in the Composition of Cosmic Rays," A. Alikhanyan, Corr Mem, Acad Sci USSR, A. Dadayan, N. Shostakovich, Phys Inst, Acad Sci Armenian SSR

"Dok Ak Nauk SSSR" Vol 82, No 5, pp 693-696

Authors acknowledge the assistance of G. Akopyan, M. Dayon, and L. Potapov in the measurements. Give the mass spectra of particles (number of particles versus mass, from 400 to 1,360 m_e), according to results of a number of measurements of the masses

230T87

ALIKHANYAN, A.

of cosmic particles obtained in the course of 1950-1951 on Mt Alagez. Describe counter installation and magnets. Submitted 15 Nov 51.

230T87

2458 PARTICLES WITH A MASS WHICH IS INTERMEDIATE BETWEEN THE MASS OF A MESON AND PROTON (O Chastitsakh s Massoi Promyezhutochnoi Myezhdu Massoi Mezona i Protona), A. Alikhanyan and V. Kharitonov; DOKLADI AKADEMII NAUK (USSR) July '52 (83-2 Irreg); pp 295-298; 2 illus, 2 tb. Conclusive data are presented showing that at an altitude of 3200 m the composition of cosmic rays, under certain conditions and impulse intervals of from 2.8 to 4.8 $\times 10^8$ ev/sec, includes particles with masses which are intermediate between the mass of μ-mesons and protons (varitrons). Detailed investigation showed that the masses of these particles are grouped around three values, averages of which are 280, 580, and 950 m_e. Each group has positive and negative particles in approximately the same amount. The number of varitrons with a mass of 900-1000 m_e amounts to only 5% of the number of protons recorded under the same conditions. The ratio between the number of particles with masses ranging from 400-1000 m_e and the number of protons depends upon the conditions under which the experiment is carried out. The appearance of particles with intermediate masses should not be explained by the nonionizing intermissions of π-mesons because the average ionizing power for light particles exceeds the ionizing power of mesons with identical impulses by 1.7 $\pm$ 0.13 times and for heavy particles by 2.1 $\pm$ 0.14 times. The admixture of mesons retarded in the filters as results of nonionized energy losses constitutes only a small part of the observed effect.

ALIKHANYAN, A.

PA 245T65

USSR/Nuclear Physics - Deuterons 11 Nov 52

"Generation of Fast Deuterons in Cosmic Rays," A. Alikhanyan, Corr Mem, Acad Sci USSR, and G. Marikyan; Phys Inst imeni Lebedev of Acad Sci USSR and Phys Inst of Acad Sci Armenian SSR

"Dok Ak Nauk SSSR" Vol 87, No 2, pp 191-194

Present results of a detailed investigation of a mass spectrum in the field of particles with masses exceeding the proton mass, by means of a mass spectrometer, described previously ("Dok Ak Nauk SSSR" 86, 37 (1952)), with a field of 14,000 oersteds. Clearly discerned deuterons. Thanks V. M. Khariton, I. Ya. Pomeranchuk, and G. I. Merzon, the last for his aid in the measurements. Submitted 2 Sep 52.

245T65

245T65

ALIKHANYAN USSR

11.1

537.591.8

5773. On fast deuteron
ALIKHANYAN AND G. A.
Akad. Nauk S.S.S.R. (Sér. Fiz.) 17,

Two sets of measurem
with the apparatus of Ab
netic fields of 6200 and 1
group of particles with m
(deutrons) was separat
The number of deuterons
Pb (200–400 MeV) was
with equal range. Al
recorded were produced
An approximate evalua
section, for neutrons
$\sigma \simeq 0{\cdot}26\,\sigma_n$, where σ_n is
of a Pb nucleus. [T
summary (see Abstr. 57

In cosmic rays. A. I.
MARKYAN. Izv. Akad.
6, 1, 94 (1953) *In Russian.*
ks were made at 3200 m
r, 5750 (1954), with mag-
000 gauss respectively. A
ss in the range 3500–4000
from the proton peak,
aving a range of 3–6 cm in
hout 10% of the protons
ast 25% of the deuterons
n Pb by incident neutrons.
n of the production cross-
ving $E > 500$ MeV, gives
he geometrical cross-section
nscription of Watsghin's
above).]

ALIKHANYAN, A.,[1] ACT MEM ACAD SCI USSR

USSR/Nuclear Physics - Mass Spectrometer 11 Sep 53

"Magnetic Mass Spectrometer Coupled With Wilson's Chamber," A. Alikhanyan, Act Mem Acad Sci USSR, V. Kirillov-Ugryumov, N. Shostakovich and V. Fedorov, Phys Inst im Lebedev, Acad Sci USSR and Phys Inst, Acad Sci Georgia SSR

DAN SSSR, Vol 92, No 2, pp 255-257

Spectrometer facilitates accurate measurements of the energy of a charged cosmic-ray particle and its tracing. It allowed the first detection of unstable particles called varitrons. Recently this spectrograph was coupled with Wilson's chamber and operated

269T85

on the mountain peak Alagez at 3200 m altitude. Equipment and results are described. Indebted to B. N. Deryagin, M. M. Veremeyev, L. Bagdasaryan, G. Badalyan, D. Shkarlet. Rec 21 Jul 53.

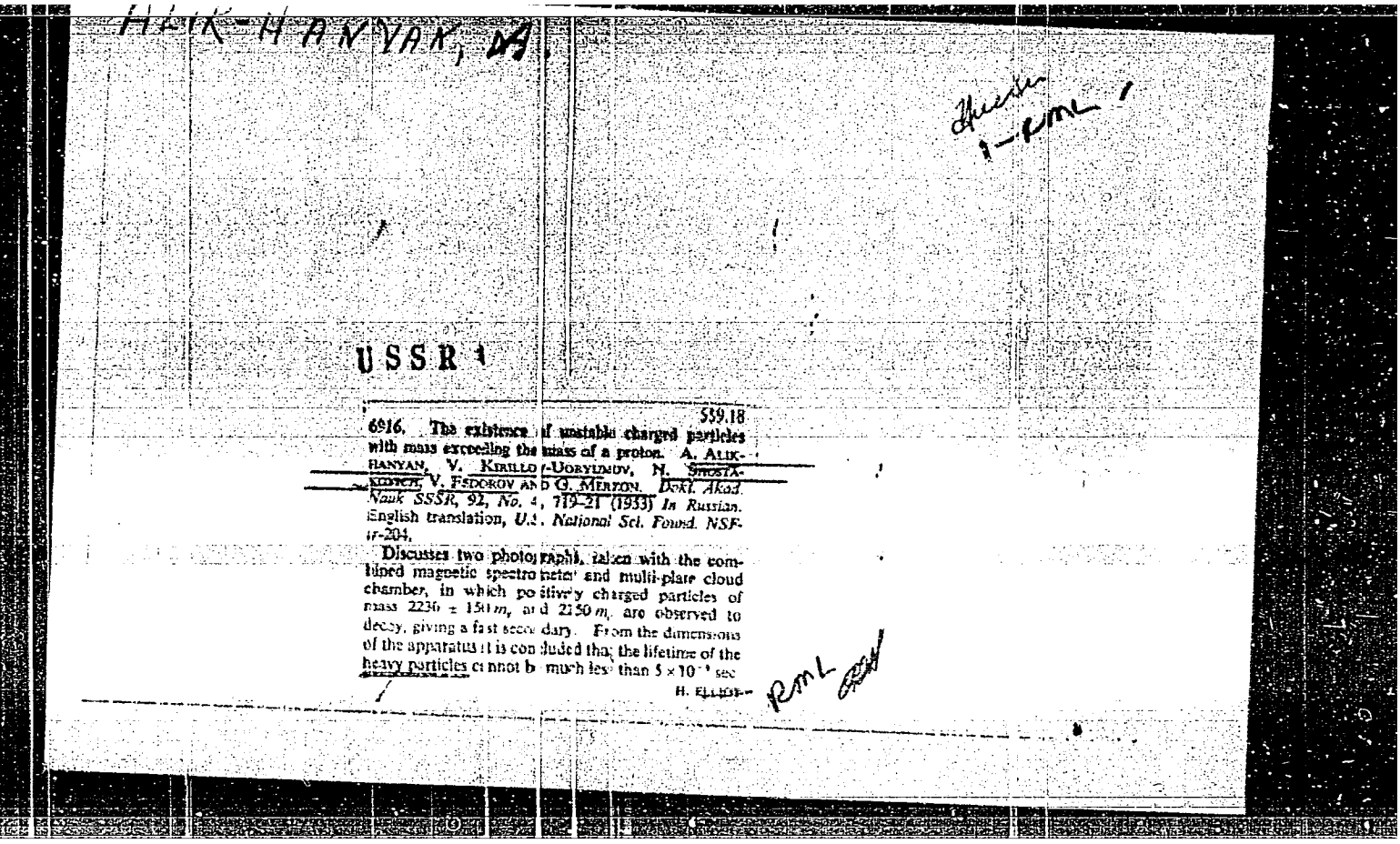
USSR

539.18

4982. Observation of the stopping of particles with mass of 500 to 600m. A. ALIKHANYAN, V. KIRILLOV-UGRYUMOV, N. SHOSTAKOVICH, V. FEDOROV AND G. MIRZOYAN. *Dokl. Akad. Nauk SSSR*, 92, No. 3, 511-13 (1953) *In Russian.* English translation, *U.S. National Sci. Found. NSF-tr-150.*

Gives a preliminary account of observations on particles of mass 500-600m, which stop in a cloud chamber containing copper plates and operated in conjunction with a magnetic spectrometer. The examples given are of positive particles which on stopping give rise to an electron pair. It is suggested that the heavy particle decays into a π^0 and a π^+-meson. The π^0-meson then decays into two photons with subsequent conversion of one of them into an electron pair. It is estimated that the lifetime of the particles cannot be much shorter than 5×10^{-9} sec.

H 111101



ALIK-HANYAN, A.

USSR

559.18

6916. The existence of unstable charged particles with mass exceeding the mass of a proton. A. ALIKHANYAN, V. KIRILLOVA-UGRYUMOV, N. SMOSTA-KEVICH, V. FEDOROV AND G. MERTON. *Dokl. Akad. Nauk SSSR*, 92, *No.* 4, 719–21 (1953) *In Russian.* English translation, *U.S. National Sci. Found. NSF-tr-204.*

Discusses two photographs, taken with the combined magnetic spectrometer and multi-plate cloud chamber, in which positively charged particles of mass $2236 \pm 150\,m_e$ and $2150\,m_e$ are observed to decay, giving a fast secondary. From the dimensions of the apparatus it is concluded that the lifetime of the heavy particles cannot be much less than 5×10^{-9} sec.

H. ELLIOT

ALIKHANYAN, A.

USSR

539.18

1909. Observation of the stopping of heavy mesons. A. ALIKHANYAN, V. KIRILLOV-UGRYUMOV, N. [illegible], V. FEDOROV AND G. MERZON. *Dokl. Akad. Nauk SSSR*, 92, No. 5, 913–17 (1953) *In Russian.* English translation, *U.S. National Sci. Found. NSF-tr-214.*

Discusses five examples of heavy mesons stopping in a multiplate chamber placed at the exit of a magnetic spectrometer. The first is positively charged and three particles emerge from the stopping point. Its mass is estimated to be 990 m_e and it is probably a τ-meson. In the second case the primary is negative and on stopping gives rise to a single secondary at minimum ionization. The mass of the primary is estimated to be 940 ± 90 m_e. Two other cases were observed in which negative mesons with masses ~1000 m_e stopped and the secondary particles were either π- or μ-mesons. The fifth example is a positive primary of mass 1520 ± 150 m_e which gives rise to a single secondary and may be a χ-meson. H. ELLIOT

ALIKHANYAN, K.

Overhead fan "Zephur." Prom.Arm. 4 no.2:39-41 F '61.
(MIRA 14:6)

1. Armyanskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta elektromekhaniki.
(Fan, Electric)

ALIKHANYAN, A.I.; KHEYFETS, S.A.; YESIN, S.K.

Electron and positron storing devices. Usp. fiz. nauk 81 no.1: 7-49 S '63. (MIRA 16:12)

ACC NR: AT7008898 SOURCE CODE: UR/0000/66/000/000/0076/0082

AUTHOR: Alikhanyan, A. I.; Aleksanyan, A. S.; Verebryusov, V. S.; Veremeyev, M. M.; Demidov, V. S.; Kirillov-Ugryumov, V. G.; Protasov, V. P.; Ponosov, A. K.; Sergeyev, F. M.

ORG: none

TITLE: Bubble chamber designed to operate in a magnetic field

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Fizika elementarnykh chastits, 1966, 76-82

TOPIC TAGS: austenite steel, bubble chamber, pi meson, synchrotron, photography

SUB CODE: 20, 14

ABSTRACT: The article describes a bubble chamber with an effective volume of 200 liters made of nonmagnetic austenite 1Kh18N9T steel and consisting of a permanent outer vessel and the working chamber proper located inside it. The design of the inner chamber, outer vessel, and expander is generally similar to that described in an earlier article by A. V. Bogomolov et al. The upper lid of the permanent vessel has six windows for photography. Differential three-stage valves are used for increasing pressure and for depressurization in the chamber. The working space of the chamber is illuminated by eight out of sixteen IFK-120 flash bulbs mounted in pairs on a special panel; the lighting system design also permits the use of IFP-4000 bulbs. The photographing is done on two standard aerial photographic films, with a sensitivity of 1200 GOST [Gosudarstvennyy Obshchesoyuznyy

Card 1/2

UDC: 539.1

ACC NR: AT7008898

Standart; All-Union State Standard] units and 80 mm width, by two "Gidrorussar-4"-type objectives. During operation of the chamber chromatic aberration was observed, resulting in a ghost effect in the particle track image. This was eliminated by photographing in monochromatic light through an experimentally chosen orange light filter. The chamber is heated by three 2-kw electric heaters, with one of the heaters set directly on the inner chamber. There are two versions of thermostat system control. The first employs a standard contact thermometer mounted in the chamber casing. The second version employs an electrocontact manometer. The article includes a block diagram of the chamber's control circuit. The chamber was tested in operation with various working fluids: propane, a mixture of Freon-12 and Freon-13, a propane-ethane mixture, and propane-Freon and propane-ethane-Freon mixtures. The chamber is at present set up in an MS-12 magnet in the path of a beam of negative pi-mesons, 4 Gev in energy, of the proton synchrotron of ITEF [Institut teoreticheskoy i eksperimental'noy fiziki; Institute of Theoretical and Experimental Physics]. The actuation cycle of the chamber is 4 seconds. The authors express their thanks to Yu. V. Kuznetsov, Ye. P. Kuznetsov, M. G. Gornov, S. M. Ryumin, A. F. FAlin, and E. S. Levonyan for their assistance and "valuable advise" and to Yu. A. Budagov for "useful discussions". Orig. art. has: 8 figures. [JPRS]

Card 2/2

ALIKHANYAN, A.I.; ASATIANI, T.L.; MATEVOSYAN, E.M.; NAZARYAN, A.A.; SHARKHATUNYAN, R.O.

Observation of fast particle tracks in a two-electrode spark chamber in a magnetic field. Zhur. eksp. i teor. fiz. 45 no.5:1684-1687 N '63. (MIRA 17:1)

1. Fizicheskiy institut Gosudarstvennogo komiteta po ispol'zovaniyu atomnoy energii SSSR.

BR

ACCESSION NR: AP4031140 S/0056/64/0046/004/1212/1215

AUTHORS: Alikhanyan, A. I.; Val'ter, A. K.; Garibyan, G. M.; Grishayev, I. A.; Lorikyan, M. P.; Petrenko, V. V.; Fursov, G. D.

TITLE: Ionization energy losses of fast electrons in thin polystyrene layers

SOURCE: Zh. eksper. i teor. fiz., v. 46, no. 4, 1964, 1212-1215

TOPIC TAGS: polystyrene, ionization loss, electron bombardment, polarization

ABSTRACT: The dependence of the electron ionization energy loss on the electron momentum was investigated experimentally as a continuation of earlier work (ZhETF v. 44, 1122, 1963) with polystyrene films of different thickness. In the present work the polystyrene film thicknesses were 10^{-5}, 2×10^{-5}, and 2×10^{-4}. The measurement procedure is described. On the basis of these and the earlier mea-

Card 1/3

ACCESSION NR: AP4031140

surements it is concluded that in the 20--86 MeV range the electron ionization energy losses in polystyrene films of thicknesses equal to or less than the critical value are in good agreement with the theoretical prediction of G. M. Garibyan (ZhETF v. 37, 527, 1953). At thicknesses greater than critical, the influence of the polarization begins to be felt and increases with thickness. "The authors are grateful to Professor V. M. Kharitonov and V. I. Startsev for help with the work, and to the accelerator crew."

ASSOCIATION: Fizicheskiy institut GKAE, Yerevan (Physics Institute GKAE). Fiziko-tekhnicheskiy institut AN UkrSSR (Physicotechnical Institute AN UkrSSR)

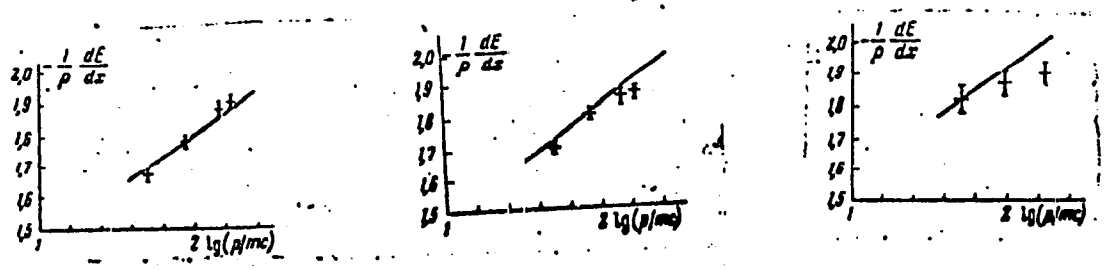
SUBMITTED: 19Oct63 DATE ACQ: 07May64 ENCL: 01

SUB CODE: GP, NP NR REF SOV: 003 OTHER: 001

Card 2/3

ACCESSION NR: AP4031140

ENCLOSURE: 01



Theoretical curves and experimental values (+) of electron energy loss in a polystyrene film (film thickness, left to right: 10^{-5}, 2×10^{-5}, and 2×10^{-4} cm)

3/3

AL'KHANYAN, K.A., inzh.

Series of motor reducing gear units for agricultural use.
Elektrotekhnika 35 no.5:36-37 My'64 (MIRA 17:8)

ZHDANOVA, N.I.; ZHAROVA, N.I.; ALIKHANYAN, S.

Comparison of the effect of fast neutrons, X-rays and ultraviolet rays with that of chemical mutagens in Actinomyces antibioticus culture. Radiobiologiia 5 no.2:304-308 '65.

(MIRA 18:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov, Moskva.

ALIKHANYAN, S. I.

"The 'Phenomenon of Pairing' During the Formation of New Genes," Dok. AN, 58, No. 8, 1947.

ALIKHANYAN, S. I. PA 60T52

USSR/Medicine - Flies Dec 1947
Medicine - Heredity Mechanism

"Time of Development of Curl Indications in the Drosophila Melanogaster," S. I. Alikhanyan, F. M. Polkanov, Moscow State U imeni M. V. Lomonosov, 3 pp

"Dok Akad Nauk SSSR, Nova Ser" Vol LVIII, No 7

Dominant mutation of curl in Drosophila Melanogaster was first observed in 1918. This type of Drosophila has very severely curled wings. Observed that curl indications depend on temperature at which flies were born. Low temperatures produced various results: in some cases curling intensified; in others, diminished. Submitted by Academician I. I. Shmal'-gauzen, 26 May 1947. [redacted] 60T52

ALIKHANYAN, S. I. FA 77T49

USSR/Medicine - Chromosomes May 1948
Medicine - Heredity, Mechanism

"The 'Time of Action' of the Curly Gene," S. I. Alikhanyan, Sci Res Inst imeni M. V. Lomonosov, 4 pp

"Dok Ak Nauk SSSR" Vol LX, No 4

This gene acts in two stages in Drosophila melanogaster: 6 days from time egg is laid, and on ninth day, 6 hours before emergence of fly from chrysalis. First effect increases wing curvature, second diminishes it. Describes series of experiments where incubation was subject to artificial stimulation and retardation (temperature, lack of oxygen caused by carbon dioxide

77T49

USSR/Medicine - Chromosomes (Cont'd) May 1948

or ether). Effect on wings was observed in each case. Results are discussed. Submitted 16 Feb 1948.

77T49

ALIKHANYAN, S. I.

PA 41T59

USSR/Medicine - Heredity Jan/Feb 1948
Medicine - Chromosomes

"Chemical Nature of Genes," S. I. Alikhanyan, Moscow, 18 pp

"Uspekh Sovr Biol" Vol XXV, No 1

Discusses some aspects of the chemical nature of genes and their role in biochemistry. States that the chemistry of genes is of direct assistance in understanding genetic and biological evolution, particularly since the chemical approach to the problem opens a new method.

LC 41T59

ALIKHANYAN, S. I.

PA 68T80

USSR/Medicine - Genetics May 1948
Medicine - Chromosomes

"A New Principle of the Action of Nonautonomous Genes," S. I. Alikhanyan, Inst Zool, Moscow State U imeni M. V. Lomonosov, 3 pp

"Dok Ak Nauk SSSR" Vol LX, No 5

In spite of large amount of work done on so-called genetic products of "plus vermilion" and "plus cinnabar," very little is published regarding mechanisms of action of genes. Experiments to determine atomic action in genes and genes not possessing atomic action. Submitted by Academician I. I. Shmal'gauzen 6 Mar 1948.

68T80

ALIKHAN'YAN, S.I., kandidat biologicheskikh nauk; MINDLINA, S.Z.

Selection of active strains producing antibiotics. Antibiotiki 7 no.6:3-13 '54. (MLRA 8:2)

(ACTINOMYCES,
selection for prod. of antibiotics)
(PENICILLIUM,
selection for prod. of antibiotics)
(ANTIBIOTICS, preparation of,
selection of microorganisms)

USSR/Microbiology - Antibiosis and Symbiosis. Antibiotics. F-2

Abs Jour : Ref Zhur - Biol., No 3, 1958, 9842

and considerably surpasses in activity all known native and foreign strains when cultuvated on different media.

Card 2/2

ALIKHANYAN, S.I.; BORISOVA, L.N.

Vegetative hybridization of the fungi of the Penicillium family. Izv.AN SSSR. Ser.biol. no.2:74-90 Mr-Ap '56. (MLRA 9:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy insitut antibiotikov.
(PENICILLIUM) (HYBRIDIZATION, VEGETABLE)

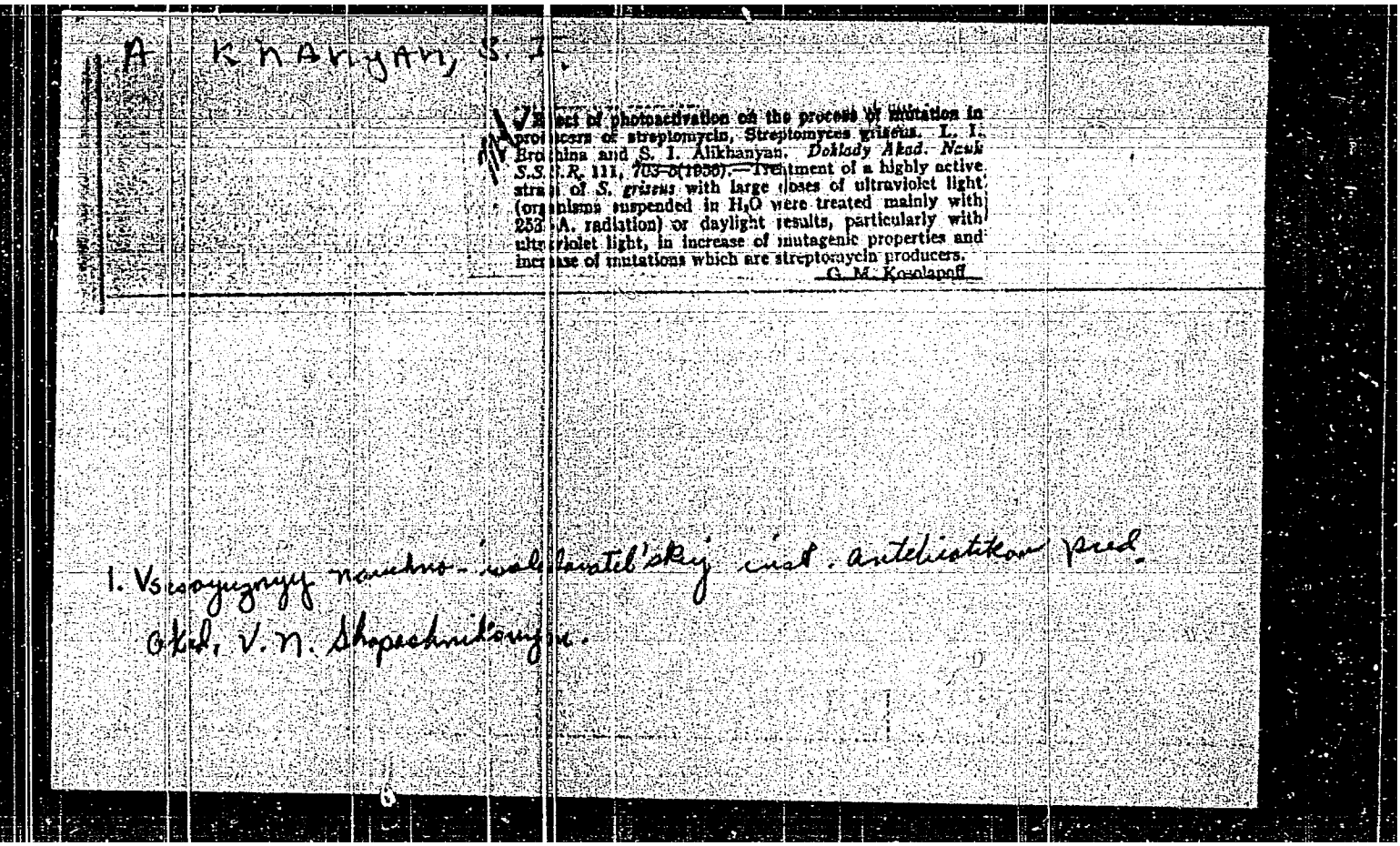
ALIKHANYAN, S.I.; MINDLIN, S.Z.

New active strains of Penicillium; hybrid 31 (beige)
Antibiotiki, Moskva 9 no.2:36-40 Mar-Apr 56 (MLRA 9:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov.
(PENICILLIUM
new active strain, hybrid 31 beige)

ALIKHANYAN, S.I.; MINDLIN, S.Z.

Lethal and mutagenic effect of ultraviolet radiation on microorganisms [with English summary in insert]. Zhur.ob.biol. 17 no.6: 413-435 N-D '56. (MLRA 10:9)
(ULTRAVIOLET RAYS--PHYSIOLOGICAL EFFECT)
(BACTERIA)



A. KHACHATRYAN, S. I.

Effect of photoactivation on the process of mutation in producers of streptomycin, Streptomyces griseus. L. I. Brodina and S. I. Alikhanyan. *Doklady Akad. Nauk S.S.S.R.* 111, 703–6(1956).—Treatment of a highly active strain of *S. griseus* with large doses of ultraviolet light (organisms suspended in H_2O were treated mainly with 253 A. radiation) or daylight results, particularly with ultraviolet light, in increase of mutagenic properties and increase of mutations which are streptomycin producers.
G. M. Kosolapoff

1. Vsesoyuznyy nauchno-issledovatel'skiy inst. antibiotikov pred. Akad. V. N. Shaposhnikovym.

ALIKHANYAN, S.I.

Biochemical mutants of Actinomyces rimosus (producer of Terramycin). S. Z. Mindlin and S. I. Alikhanyan. *Doklady Akad. Nauk S.S.S.R.* 111, 884 (1956). [illegible] tion of A. rimosus with [illegible]

[illegible]

yield was noted. [illegible] increase of Terramycin

G. M. K[illegible]

USSR/Microbiology - Antibiosis and Symbiosis. Antibiotics. F-2

Abs Jour : Ref Zhur - Biol., No 3, 1958, 9843

Author : Alikhanyan, S.I., Goldat, S.Yu., Klepikova, F.S., Mindlin, S.Z.

Inst : -

Title : Utilization of Ethylenimine is Selection of Strains of Penicillin Producers.

Orig Pub : Antibiotiki, 1957, 2, No 1, 33-36

Abstract : In treatment of Penicillium chrysogenum spores by solutions of ethylenimine a considerable morphological variability in degree of sporulation, form, size, wrinkling and colony coloration was noted among the surviving colonies. White, beige and lattuce-colored variants were isolated, and also variants without pigments, which did not form a golden-yellow pigment. Among colonies which survived after treatment of spores of strain D 2/3 P. chrysogenum by ethylenimine, a separation was conducted

Card 1/2

USSR/Microbiology - Antibiosis and Symbiosis. Antibiotics. F-2

Abs Jour : Ref Zhur - Biol., No 3, 1958, 9843

based on penicillin production. As a result of step-by-step selection among 1200 variants, a strain No 87 was obtained with an activity exceeding by over 35% the activity of the initial strain (650-750 and 900-1000 units per ml, respectively).

Card 2/2

ALIKHANYAN, S.I., doktor biologicheskikh nauk.

Without genetic research penicillin and other antibiotics would cost much more. Tekh. mol. 25 no.5:38 My '57. (MLRA 10:6)
(Antibiotics)

ALIKHANYAN, S.I.

20-5-55/60

AUTHOR ALIKHANYAN, S.I. and MINDLIN, S.Z.

TITLE An Attempt to Make Use of Biochemical Mutants of Actinomyces Rimosus in Order to Obtain Hybrid Forms
(Ispol'zovaniye biokhimicheskikh mutantov Actinomyces rimosus dlya polucheniya gibridnykh form. Russian)

PERIODICAL Doklady Akademii Nauk SSSR, 1957, Vol 114, Nr 5, pp 1113 - 1115(U.S.S.R.)

ABSTRACT It is known that in the case of some bacteria and fungi which have no process of sexual generation there were produced during recent years, hybrid forms which combined the characteristics of both initial forms. The mechanism of this phenomenon has not been completely clarified and apparently varies in individual cases. In the case of fungi it is based on the phenomenon of heterokaryosis brought about by anastomoses. According to some authors the fusion of the germ tubes of the actinomycetes takes place during spore germination. According to other opinions the problem of the generation process of the actinomycetes is not yet solved. It was hoped, however, to obtain hybrid forms from these fungi. This latter problem, beside being of theoretical interest, would also, if solved, be of great practical advantage, namely in the selection of producers of antibiotics originating from actinomyces. In the present work the attempt was made to produce combined forms between two biochemical mutants of Actinomyces rimosus (producer of terramycin). For this purpose the authors embyed the somewhat modified method of combined

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An Attempt to Make Use of Biochemical Mutants of Actinomyces Rimosus in Order to Obtain Hybrid Forms

sowing by Roper and Sermonti. Starting material were stems 101 and 8229 of the fungus. The biochemical mutants were obtained by irradiation with ultraviolet rays of a bactericidal lamp BUF-30, which emits 60% rays 2537 Å of length. Test tubes with insufficient growth were used for further cultivation by the addition of some drops of liquid maize--culture medium. Biochemically defective forms isolated in this manner were then examined for amino acids and vitamins. Among them were forms which needed various vitamins and amino acids. The obtained biochemical mutants were sown by pairs. On a culture medium of maize some peculiar phenomena could at once be observed. Growth and sporulation along the limit between the colonies of different mutants were much more intensive than in the other parts of the colonies. The zones of this abundant growth formed small mounds, the air- mycelium in them being of a different color than that in the two colonies of mutants. The transmission of those resulted in poor growth and rough colonies. Mixed sowing of spores in thick suspensions afforded colonies as described above. The nature of the interaction is still obscure. Two explanations may be suggested:

An Attempt to Make Use of Biochemical Mutants of Actinomyces Rimosus in Order to Obtain Hybrid Forms

1.) A peculiar type of synchronism becomes evident on this occasion. No new formations develop. This is indicated by the parallel growth noticed in the case of actinomycetes. It is possible that bundles of different hyphae develop in common culture of biochemical mutants. The hyphae lying close to each other supply each other with the lacking foodstuffs. This leads to a more powerful common growth than in the case of separate cultivation. 2.) Between the mycelia occurs the formation of heterokaryons which contain the nuclei of both mutant types. Their interaction in the heterokaryon mycelium explains the more powerful development. In both cases the sowing must lead to the cleavage of the initial types, as it actually happens. Future experiments will show which of the two explanations is true. The problem of hybrids of ray fungi is by no means solved.

Note during correction. After the paper had been delivered for print the authors succeeded in obtaining combined forms of Actinomyces rimosus in a number of combinations of biochemical mutants.

(2 figures, 2 tables, 2 Slavic references.

Alikhanyan, S. I.

AUTHORS: Alikhanyan, S. I. and Klepikova, F. S. 20-4-49/60

TITLE: A Study of the Effect Produced by X-Rays Upon Variation in Actinomyces Subtropicus (the Producer of Albomycine)(Izucheniye vliyaniya X-luchey na izmenchivost' Actinomyces subtropicus (produtsent al'bomitsina).

PERIODICAL: Doklady Akademii Nauk, 1957, Vol. 115, Nr 4, pp. 806-808(USSR).

ABSTRACT: The utilisation of ionizing and ultra violet rays as well as of chemical factors on the occasion of selection furnishes the most effective results in the production of antibiotica. Many a well known race, the producers of penicillin, streptomycine, aureomycine and others are equally products of radio selection. The publications referring to the theoretical fundamentals of radio selection of the micro-organism are very rare. The race Nr. 39 of the actinomyces subtropicus was used by the authors for the application of X-rays on the occasion of the selection of the albomycine producer. Already before the action of ultra violet sound on a selected natural variant of the race 614-K was produced. The latter does not exclude the so-called II-factor. As it can bee seen on figure 1 the space decay depends linearly on the irradiation dose. The frequency of the morphologic mutation increases in the case of small doses with the increase of the

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dose and reaches a maximum at 400-500 thousand r. In the case of a further increase of the dose it decreases. These results agree with those of Newcombe and Mc Gregor with the streptomyces race T-12. The study of the character of the variability induced by X-rays as to the formation of the antibiotic was the amin problem of the authors. This problem has not yet been discussed in the publications. On figure 2 it can be seen that the activity of the variants of a insemination of a not irradiated suspension compared to the activity of the initial control fluctuates within relatively little far limits: 40-160%. In the irradiated material the variability of the amplitude increases in the direction of the increase of the activity (plus variant) as well as in the direction of its decreasing (minus variant). In the case of a further increase of the dose the frequency of both variants decreases. The following conclusions could be drawn: 1. An equal dependency character of the dose for the morphologic characteristics as well as for the biochemical production of the antibiotic was observed. 2. The occurring of minus variants takes place very intensively while plus variants occur rarely. 3. An uncorrect dose of X-rays on the occasion of selection may lead to negative results in the case of the application of small as well as of high doses. This may create the impression of an uneffectiveness of these

A Study of the Effect Produced by X-Rays Upon Variation in Actinomyces Subtropicus (the Producer of Albomycine). 20-4-49/60

rays. Finally the 3 most active variants were chosen (Nr. 444, 448 and 738). (Comparing activity of all races on fig. 1). The ability of the initial races, not to eliminate factor II is fully conserved on the occasion of the action of ultra violet and x rays. Inspite of the rarity of the plus variant its given frequency for the successfull selection is fully sufficient on the occasion of the increase of activity of the races.
There are three figures, 1 table and 4 Slavic references.

ASSOCIATION: All-Union Scientific Research Institute for Antibiotics (Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov).

PRESENTED: By V.A. Engel'gardt, Academician, April 10, 1957

SUBMITTED: April 5, 1957.

AVAILABLE: Library of Congress.

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20-5-45/54

AUTHORS: Alikhanyan, S.I., Gol'dat, S. Yu., Teteryatnik, A. F.

TITLE: The Mutation Effect of a Combined Action of Ethylenimine and Ultra-Violet Rays upon Actinomycetes (Mutagennyy effekt kombinirovannogo deystviya etilenimina i ultrafioletovykh luchey na aktinomitsety)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol. 115, Nr 5, pp. 1015 - 1017 (USSR)

ABSTRACT: Swanson proved in 1948 that the frequency of mutation of Aspergillus terreus and Neurospora crassa increases more intensively after the treatment of their spores with small doses of bis-ß-chlorethylmethylamine, if they are subsequently exposed to violet rays, than by an exposure to ultra-violet rays solely. It was therefore presumed that the environmental factors can produce an effect upon the sensitiveness of the cell with respect to the radiated energy, viz. that the frequency of mutation is not only a function of the absorbed energy. This induced the authors to study the effect of the combined action of ethylenimine- and ultra-violet rays upon various actinomycetes. They used Strepto-

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The Mutation Effect of a Combined Action of Ethylenimine and Ultra-Violet Rays upon Actinomycetes

myces aureo faciens No 112 and Str. griseus LS-1 (Actinmyces globisporus streptomycini). Both ethylenimine and a series of its derivates show an effective "zytotoxical" action. Part of the initial spore suspension of the first-mentioned kind of fungus was kept during 5 and 20 hours (respectively) in solutions of ethylenimine of various concentrations (1 : 5000 to 1 : 8000) and was subsequently exposed to rays. An other part of the suspension was first exposed to rays and subsequently treated with ethylenimine solution (as above). The test in respect to the produced effect upon the vitality are given in table 1. It may be seen from this that the decay of spores as a consequence of their exposure to rays, increases intensively, provided that they were subject to a previous treatment with ethylenimine - compared with their mortality in case of an inverse sequence of the said factors. The vitality of the spores also decrease 50 times by their exposure to rays solely, if their dose has been increased from 2000 to 10.000 erg/mm^2. It falls 80 times, if the spores are first exposed to rays and subsequently treated with ethylenimine,- viz.

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The Mutation Effect of a Combined Action of Ethylenimine and Ultra-Violet Rays upon Actinomycetes

only four times, - and with an inversed sequence of the factors (concentration 1 : 5000). The results obtained with Str. griseus were similar (analogous). The test results in respect to the frequency of mutation of the latter fundus in case of a combined action, when ethylenimine was applied first, are given in table 2. This frequency rises rapidly in the case of the latter sequence of treatments. The same results were obtained with Str. aureo faciens. As to the mechanism of the rapid rise of the frequency of mutations which were induced by ultra-violet rays, it may be assumed that the sensibilization of the cells against ultra-violet rays increases under the effect of ethylenimine. By this, the action of the ultra-violet rays upon the nucleus is intensified. It may also be presumed that these rays excite the molecule ethylenimine and by this abruptly increase its reactivity. There are 2 figures, 2 tables and 1 Slavic reference.

20-5-45/54

The Mutation Effect of a Combined Action of Ethylenimine and Ultra-Violet Rays upon Actinomycetes

ASSOCIATION: All-Union Scientific Research Institute for Antibiotics (Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov)

PRESENTED BY: I.L. Knunyants, Academician , March 18, 1957

SUBMITTED: March 16, 1957

AVAILABLE: Library of Congress

Card 4/4

17(0)

AUTHORS: Alikhanyan, S. I., Zhdanov, V. G. SOV/20-125-6-50/61

TITLE: The Effect of Combined Application of Physical and Chemical Mutagenic Agents Upon Mutations in Polygenic Systems of Microorganisms (of Actinomyces erythreus, the Producer of Erythromycin) (Vliyaniye kombinirovannogo vozdeystviya fizicheskikh i khimicheskikh mutagenov na mutatsii v poligennykh sistemakh mikroorganizmov (produtsenta eritromitsina Actinomyces erythreus))

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 6, pp 1353-1355 (USSR)

ABSTRACT: The frequency of the mutations in the case of Aspergillus terreus caused by ultraviolet radiation can be increased by a previous treatment of the conidia with an aqueous solution of the nitrous yprite form, i.e. bis-β-chloro-ethyl-amine . HCl (MBA) (Ref 1). Though 0.1% of MBA did not initiate the mutations, it reacted chemically with the nucleus- and plasma content of the spore. It is known that this content determines the heredity: the mentioned reaction renders this content more mutable in the case of the ultraviolet irradiation. The number of the mutations increased (in single cases by the 300-400 fold), and the maximum was earlier reached than in the case of the

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ultraviolet rays alone (Ref 2). Ethylene imine (EI) shows in the case of Streptomyces aureofaciens and S. griseus a similar, though weaker effect (Ref 3). The authors investigated the combined effect of EI and of the ultraviolet- as well as of the X-rays upon the selection in order to increase the formation of the antibiotic in the case of the culture Nr 221 of Act.erythreus. The activity of the initial culture amounted to only 450-500 units. The spores, suspended in distilled water were stored 24 and 48 hours long in an EI-concentration of 1:15000 at 3 and 5° and then treated with a dose of ultraviolet rays (250-2000 erg/mm^2) (lamp - Ref 4) or of X-rays 50-300 kr. The activity of the control and of the chemically pre-treated culture was estimated by fermentation in a soybean medium. The tables 1-3 show the results. (Table 3 - some new cultures). The following definite conclusions are drawn from the obtained results: 1) Hereditarily stable active variants could be obtained only in the case of the effect of mutagenic factors on the spores. 2) The combination EI → ultraviolet rays is the most effective combination for the production of mutation changes in the poly-

The Effect of Combined Application of Physical and Chemical Mutagenic Agents Upon Mutations in Polygenic Systems of Microorganisms (of Actinomyces erythreus, the Producer of Erythromycin) SOV/20-125-6-50/61

genic system of Act. erythreus. It gave the highest percentage of morphological mutations. Since these results agreed with those of Act. aureofaciens and Str. griseus (Ref 3) the authors say that this combination is the most effective one. This mutagenic combination has to be tested in the case of a producer of another antibiotic in order to be able to draw definite conclusions. There are 2 tables and 4 references, 3 of which are Soviet.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov (All-Union Scientific Research Institute of Antibiotics)

PRESENTED: December 24, 1958, by N. V. Tsitsin, Academician

SUBMITTED: December 22, 1958

Card 3/3

ALIKHANYAN, S.I.; GARINA, K.P.

Strain of the producer of oleandomycin. Antibiotiki 5 no.3:14-17 My-Je '60. (MIRA 14:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov.
(OLEANDOMYCIN) (STREPTOMYCES)

ALIKHANYAN, S.I.; KAMENEVA, S.V.; KRYLOV, V.N.

Experimentally increased frequency of the formation of diploid nuclei in the mycelium of heterokaryons of Penicillium janchewskii. Mikrobiologiia 29 no.6:820-825 N-D '60. (MIRA 14:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov, Moskva.
(PENICILLIUM) (CHROMOSOMES)

ALIKHANYAN, S.I.; ZHDANOVA, N.I.

Comparative mutagenic effect of ethylenimine, ultraviolet and X rays. Dokl.AN SSSR 133 no.2:454-456 Jl '60. (MIRA 13:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov. Predstavleno akademikom I.I.Shmal'gauzenom.
(ETHYLENIMINE) (RADIOMIMETIC SUBSTANCES)

ALIKHANYAN, S.I.; LI'INA, T.S.; LOMOVSKAYA, N.G.

Evidence of genetic transduction in Actinomyces. Dokl.AN SSSR 132 no.5:1179-1182 Je '60. (MIRA 13:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov. Predstavleno akademikom V.A. Engel'gardtom.
(ACTINOMYCES) (BACTERIOPHAGE) (HEREDITY)

ALIKHANYAN, S. I., MENDLIN, S. Z., CHERKES, B. Z., KLEYNER, E. M., KHOKHLOV, A. S., ORLOVA, N. V. and ZAYTSEVA, Z. M. (USSR)

"Synthesis of Oxytetracycline in Inactive Mutants of Actinomyces rimosus."

Report presented at the 5th International Biochemistry Congress, Moscow, 10-16 Aug 1961

EXCERPTA MEDICA Sec.4 Vol.11/4 Med.Microb. etc. April 58

1005. ACTINOPHAGE AS A MUTAGENIC FACTOR - Alikhanyan S. I. and Iliina T. S. U.S.S.R. Antibiotics Res. Inst., Moscow - NATURE (Lond.) 1957, 179/4563 (784) Tables 1

Actinophage isolated from a culture of Streptomyces griseus was shown to be mutagenic for Actinomyces olivaceus. In comparative mutagenic trials with UV irradiation, actinophage produces a faster rate of mutation and higher percentage mutants than irradiation. The maximum percentage mutants obtained with a dosage of 500-4000 ergs/sq. mm. was 13.5% compared with 90% for actinophage.

Stedman - Philadelphia, Pa.

ALIKHANYAN, S. I., MINDLIN, S. Z.

"Recombinations in Streptomyces rimosus," Nature, vol 180, no. 4596, 30 Nov 1957, Great Britain. pp.1209

USSR Antibiotics Research Institute, Moscow.

USSR / Microbiology. General Microbiology. Effect of External Agents. Disinfection. F

Abs Jour: Ref Zhur-Biol., No 2, 1959, 5418.

Author : Prokof'yeva-Bel'govskaya, A. A.; Alikhanyan, S. I.; Kapitonova, O. N.; Yerokhina, L. I.
Inst : AS USSR.
Title : Cytology of Radiation Mutants in Actinomycetes (Actinomyces globisporus streptomycini Kras.)

Orig Pub: Izv. AN SSSR. Ser. biol., 1958, No 2, 193-201.

Abstract: Cytological and cultural characteristics, as well as antibiotic activity of four strains of A. globisporus streptomycini and 50 mutants of this species, obtained with the aid of ultra-high doses of ultraviolet rays (10,000-15,000 erg/mm^3) with intermediate photoreactivation, were studied. The ultraviolet radiation caused

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COUNTRY : USSR F
CATEGORY :

ABS. JOUR. : RZhBiol., No. 3 1959, No. 10019

AUTHOR : Alikhanyan, S. I., Mindlin, S. Z.
INST. : ---
TITLE : Study of Ultra-Violet-Induced Variability and Selection of Act. Rimosus (Terramycin Producer)

ORIG. PUB. : Antibiotiki , 1958, 3, No 2, 18-21

ABSTRACT : A study was made of variability induced by ultra-violet irradiation in 4 strains of Actinomyces rimosus (8229, 2a, 118 and 293) with respect to morphological characteristics and with respect to the characteristic of antibiotic production, and the most active variant was selected. Differences were found between the strains (293 and 101/2a) in their sensitivity to ultra-violet rays and with respect to the relationship of the freqnency of morphologic variants to the dose of ultra-violet rays. Note was also made

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COUNTRY :
CATEGORY :

ABS. JOUR. : RZhBiol., No. 1959, No. 10019

AUTHOR :
INST. :
TITLE :

ORIG. PUB. :

ABSTRACT : of the increase in the range of variability with respect to morphologic features (up to 40-45%) as well as in the capacity of elaborating the antibiotic after ultra-violet ray treatment of strain 118. As the result of a stepwise selection in the use of ultra-violet rays a new strain, LS--T118, was obtained which was 67% more active than the original strain 8229 (under laboratory conditions) and which was different from it in a number of morphologic characteristics. -- L. I. Yerokhina

Card: 2/2

ALIKHANYAN, S.I., IL'INA, T.S.

Mutagenic effect of actinophages [with summary in English].
Zhur.obshch.biol. 19 no.5:348-356 S-O '58 (MIRA 11:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov.
(BACTERIOPHAGE)
(ACTINOMYCES)
(VARIATION (BIOLOGY))

PROKOF'YEVA-BEL'GOVSKAYA, A.A.; ALIKHANYAN, S.I.; KAPITONOVA, O.N.; YEROKHINA, L.I.

Cytology of radiation mutants in Actinomyces (Actinomyces globisporus streptomycini Kras.) [with summary in English]. Izv.AN SSSR Ser. biol. 23 no.2:193-201 Mr-Ap '58. (MIRA 11:4)

1. Laboratoriya radiatsionnoy genetiki Instituta biofiziki AN SSSR i Vsesoyuznyy institut antibiotikov.
(ACTINOMYCES) (ULTRAVIOLET RAYS--PHYSIOLOGICAL EFFECT)

ALIKHANYAN, S.I.

Strain selection for antibiotic production; first results of radio-selection [with summary in English]. Biul.MOIP.Otd.biol. 63 no.3: 79-96 My-Je '58. (MIRA 12:3)
(ANTIBIOTICS)
(RADIATION--PHYSIOLOGICAL EFFECT)
(ETHYLENIMINE--PHYSIOLOGICAL EFFECT)

AUTHORS: Alikhanyan, S. I., Il'ina, T. S. SOV/20-120-5-53/67

TITLE: The Mutagenic Effect of Actinophage (Mutagennoye deystviye aktinofaga)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 120, Nr 5, pp. 1122 - 1125 (USSR)

ABSTRACT: In 1952 Zinder and Lederberg (Tsinder and Lederberg, Ref 6) for the first time observed the phenomenon of transduction in Salmonella. It is based on the capability of phage to transfer in some cases the individual properties of those bacteria on which the reproduction of the phage has hitherto taken place. Several authors have proved that on the occasion of the infection with phage only desoxyribonucleic acid enters the bacteria cell while the protein contained in the phage remains outside. In this connection the authors wanted to investigate the change-ability of Actinomycetes under the influence of actinophage. A survey of publications on already known evidence is given (Refs 1-4). On table 2 data are given on the spontaneous frequency of mutations in the race H-6 of Actinomyces olivaceus after a joint

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breeding with actinophage Nr 2671 and 8238. As can be seen from it the frequency of mutations attains 97,2% under the influence of the former, these mutants, however, are of another type than those formed under the action of phage Nr 1 and 2 (Tables 1 and 2). The mutations formed under the influence of actinophage Nr 8238 show a deviating frequency and deviating morphologic characteristics. Thus, it can be seen that the action of all three actinophages on the race H-6 is deeply specific. It can be assumed that the phenomenon described above is based on a certain similarity with the transduction in bacteria. In the experiments described here no distinctive transfer of the culture of the host on which the phage multiplied took place. However, certain morphologic variabilities of different type were obtained under the influence of variants of the same phage (Nr 1) which was bred on different cultures of Actinomycetes. These changes were not caused by a damaging action of the actinophage. Some groups of the changed colonies reproduced the mutants which form under the influence of ultraviolet rays. It is possible that, if actinophage is bred on a certain culture of Actinomycetes it may become the carrier of a certain genetic information. The latter

The Mutagenic Effect of Actinophage SOV/20-120-5-53/67

is then transferred to the culture of Actinomycetes infected by these phages. There are 3 tables and 6 references, 2 of which are Soviet.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov (All-Union Scientific Research Institute of Antibiotics)

PRESENTED: March 1, 1958, by V.A. Engel'gardt, Member, Academy of Sciences, USSR

SUBMITTED: February 24, 1958

1. Bacteriophages--Properties 2. Bacteriophages--Genetic effects
3. Bacteria--Genetic factors 4. Actinomycetales--Mutations

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ALIKHANYAN, S. I.

21(4); 17(0) PHASE I BOOK EXPLOITATION SOV/2808

International Conference on the Peaceful Uses of Atomic Energy. 2d, Geneva, 1958

Doklady sovetskikh uchenykh; radiobiologiya i radiatsionnaya meditsina (Reports of Soviet Scientists; Radiobiology and Radiation Medicine) Moscow, Izd-vo Glav. upr. po ispol'zovaniyu atomnoy energii pri Sovete Ministrov SSSR, 1959. 429 p. 8,000 copies printed. (Series: Vtoraya Mezhdunarodnaya konferentsiya po mirnomu ispol'zovaniyu atomnoy energii. Trudy, tom 5)

General Ed.: A.V. Lebedinskiy, Corresponding Member, USSR Academy of Medical Sciences; Ed.: Z.S. Shirokova; Tech. Ed.: Ye.I. Mazel'.

PURPOSE: This book is intended for physicians, scientists, and engineers as well as for professors and students at vtuzes where radiobiology and radiation medicine are taught.

COVERAGE: This is Volume 5 of a 6-volume set of reports delivered by Soviet scientists at the Second International Conference on the Peaceful Uses of Atomic Energy, held on September 1-13, 1958, in Geneva. Volume 5 contains 32 reports edited by Candidates of Medical Sciences S.V. Levinskiy and V.V. Sedov. The reports cover problems of the biological effects of ionizing radiation, future consequences of radiation in small doses, genetic effects of radiation, treatment of radiation sickness, uses of radioactive isotopes in medical and biological research, uses of atomic energy for diagnostic and therapeutic purposes, soil absorption of uranium fission products, their intake by plants, and their storage in plants and foodstuffs. References accompany each report.

Reports of Soviet Scientists (Cont.) SOV/2808

Gulyakin, I.V., and Ye.V. Yudintseva. The Plant Intake of Strontium, Cesium, and Other Fission Products and Their Storage in the Crops (Report No. 2311) 357

Dubinin, N.P. Mechanism of the Radiation Effect on Heredity and the Problem of Radiosensitivity (Report No. 2074) 372

Tiryakov, G.G., and M.A. Arsen'yeva. Cytogenetic Effect of Ionizing Radiation in Nuclei of Monkey Germ Cells (Report No. 2476) 385

Alikhanyan, S.I., K.P. Garina, S.Yu. Gol'dat, L.I. Yerokhina, V.G. Zhdanov, N.I. Zhdanova, U.N. Kapitonova, F.S. Klepikova, S.Z. Mindlin, A.A. Prokof'yeva-Bel'govskaya, and A.P. Teteryatnik. Genetic Effect of Radiation and the Selection of Microorganisms Producing Antibiotics (Report No. 2493) 396

AVAILABLE: Library of Congress (QC770.I53)

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17

17(4)

AUTHORS: Prokof'yeva-Bel'govskaya, A. A., Candidate of Biological Sciences
Alikhanyan, S. I., Doctor of Biological Sciences

SOV/30-59-1-19/57

TITLE: Important Problems of Genetics (Vazhnyye problemy genetiki)

PERIODICAL: Vestnik Akademii nauk SSSR, 1959, Nr 1, pp 98-100 (USSR)

ABSTRACT: At the International Conference for the Peaceful Use of Atomic Energy held in Geneva in September 1958, the problems of radiation genetics played an important part. Questions of genetic consequences of radiation, the mode of action of radiation and radiosensitivity, the protection from radiation, the use of tritium in scientific research, and the improvement of cultures and genetics were discussed. N. P. Dubinin outlined the basic trends of laboratory work for radiation genetics at the Institut biofiziki Akademii nauk SSSR (Institute of Biophysics, Academy of Sciences, USSR). S. I. Alikhanyan reported on successes in the field of radiation selection of antibiotics producers (mushrooms and actinomycetaceae) in the USSR. The authors of this article state that Soviet scientists are working in a number of directions on the same problems as other countries, but they met with better results in various

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KUZIN, A.M.; ALIKHANYAN, S.I.; PROKOF'YEVA-BEL'GOVSKAYA, A.A.

Biological problems at the second international conference of the UNO on the peaceful uses of atomic energy. Izv.AN SSSR. Ser.biol. no.2:293-296 Mr-Ap '59. (MIRA 12:5)
(GENEVA--ATOMIC ENERGY--CONGRESSES)

ALIKHANYAN, S.I.; PROKOF'IEVA-BEL'GOVSKAYA, A.A.

Problems in radiation genetics. Izv.AN SSSR.Ser.biol. no.2:296-299 Mr-Ap '59. (MIRA 12:5)
(RADIATION--PHYSIOLOGICAL EFFECT) (GENETICS)

ALIKHANYAN, S.I.; YEROKHINA, L.I.

Utilization of photoreactivation in the ultraviolet method of breeding organisms producing antibiotics. Antibiotiki, 4 no.2:14-18 Mr-Ap '59 (MIRA 12:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov.

(STREPTOMYCES
use of phtoreactivity in ultraviolet selection of organisms producing antibiotics (Ger))
(ACTINOMYCES
same)
(ULTRAVIOLET RAYS
same)

IL'INA, T.S.; ALIKHANYAN, S.I.

Use of actinophates in the selection of actinomycetes. Antibiotiki 4 no.5:20-23 S-O '59. (MIRA 13:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov.
(ACTINOMYCES)
(BACTERIOPHAGE)

ALIKHANYAN, S.I.

Radiation-controlled breeding of antibiotic producers; some results of the Second World Conference of the UN on the Peaceful Uses of Atomic Energy. Antibiotiki 4 no.6:112-116 N-D '59. (MIRA 13:3)
(ANTIBIOTICS) (FUNGI) (RADIATION--PHYSIOLOGICAL EFFECT)

ALIKHANYAN, S.I.; IL'INA, T.S.

The transducing and mutagenic action of actinophages on actinomycetes. Zhur.ob.biol. 20 no.4:269-275 Jl-Ag '59.
(MIRA 12:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov, Moskva.

(ACTINOMYCES)
(BACTERIOPHAGE)
(VARIATION (BIOLOGY))

PROKOF'YEVA-BEL'GOVSKAYA, A.A., kand.biol.nauk; ALIKHANYAN, S.I., doktor biol.nauk

Important problems in genetics. Vest.AN SSSR 29 no.1:98-100 Ja '59. (MIRA 12:2)
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